

BioPlus* bioaugmentation solutions

enhancing biological waste treatment for environmental compliance

- Cost-effective removal of ammonia and wide range of industrial organic contamination
- Portfolio of bacterial and fungal blends, enzymes and nutrients to cope with most industrial wastes being treated in secondary wastewater plants
- Integrated with advanced monitoring and chemical treatment solutions for comprehensive optimization strategies
- Cost-effective, safe and easy to apply multi-component products

description and use

SUEZ BioPlus products comprise a portfolio of specially formulated blends of naturally occurring, but adapted, high performance microorganisms, with enzymes and nutrient supplements. In addition, there are blends of bacteria and surfactants for oil and grease clean-up. This product line is used to enhance the biological degradation of organics, and ammonia, in a variety of "secondary" waste-water treatment systems. Systems that can be treated range from classic aerobic activated sludge plants, lagoons, bio-filters, MBRs, MBBRs, to UASB and other anaerobic treatment systems. Many of the products contain facultative organisms and oxygen donors allowing use in low oxygen conditions within aerobic systems.

Microorganisms used are naturally occurring bacteria and fungi that have been isolated from the environment and concentrated and stabilized for use in wastewater treatment.

Typical uses include performance enhancement (higher % removal); stability improvement (less variability) and faster recovery and start-up after upsets and system shut-down (time savings).

products and services offered

BioPlus technology includes products for:

- Enhancing COD removal in most aerobic industrial wastewater treatment systems
- Degradation of Fats, Oil and Grease (FOG) and other food processing type COD.
- Removal of COD in anaerobic reactors and lagoons
- Enhancing organic sludge degradation at the bottom of lagoons and ponds,
- Enhancing or recovering ammonia removal in the nitrification process;
- Enhancing removal of COD from pulp and paper-making operations
- Maintaining grease traps
- Cleaning oil and grease from tanks and ground contamination.
- Enhancing general biomass health with addition of dedicated nutrient supplements

Complementing the BioPlus technology are SUEZ's BioHealth* and Insight* monitoring tools (see Fact Sheets). The BioHealth is a second-generation ATP based test used in conjunction with BioPlus bioaugmentation and primary treatment, to quickly and directly measure influent wastewater toxicity and reactor biomass activity and health. Coupled with so-

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phisticated analytical and trending software packages, including real-time monitoring via Insight, primary and secondary treatment can be cost-effectively improved to levels unachievable previously.

application and treatment

Proper application and treatment levels depend on many factors and SUEZ has developed application guidelines based on prior experience, allowing for system size, flow and site-specific operating conditions. SUEZ representatives will tailor a BioPlus solution incorporating product application, as well as operational and monitoring recommendations. The most cost-effective path towards optimizing biological treatment systems usually includes these three components of a comprehensive solution

Dry BioPlus bacteria products are typically available in 5 gallon pails, while the liquid products are available in a variety of other containers.

Product Fact Sheets and Material Safety Data Sheets (MSDS) containing detailed information about individual BioPlus products are available. For more information, please contact a SUEZ representative.

solution benefits

SUEZ BioPlus bioaugmentation and cleaning products, used together used together with SUEZ operational and monitoring recommendations, will provide one or more of the following benefits:

- High Concentration/Activity of products results in increased cost-performance. Upset response and startup will be faster than other re-seeding approaches and will not introduce problematic chemistry or biology, often present in external sources of sludge.
- BioPlus bioaugmentation can reduce or eliminate capital and engineering costs of WWTP expansion. A relatively inexpensive treatment program can provide savings in upgrade costs.
- BioPlus treatment can reduce 5-day Biochemical Oxygen Demand (BOD5) surcharges and directly save operating costs, or eliminate effluent toxicity, saving regulatory fines and administrative costs, and/or PR problems.

- BioPlus treatment usually results in healthier, better settling sludge. This can save on clarifier and sludge dewatering polymer costs.
- Grease removal applications reduce maintenance costs (less frequent cleaning)
- Product handling – long stability (of most products) and convenient packaging, provides simplicity of application.
- SUEZ solutions include operational and monitoring recommendations from a trained field support team, providing a comprehensive solution, improving cost-effectiveness of bioaugmentation products.
- Superior Monitoring Capabilities: BioHealth test kit to immediately show increased bio-activity and reduced stress within biomass, and to allow customization of dosing for a cost-effective treatment program.
- Products are multi-component, include a mix of bacterial strains, fungi, enzymes and stimulants that can handle a wide range of contaminants, provide faster response and work in a wider range of conditions than traditional bacteria-only bioaugmentation products.