Genotech Inc. USA

Total Water Management

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Supply industrial water, wastewater, and enzyme products

WASTEWATER SOLUTION

Application: For municipal wastewater systems with low-temperature conditions, and help maintain COD removal efficiency at low temperatures.

W-ZYM
Master Water Treatment Enzyme

"BioWastMun4100" / EW4100
dry tan powder

"BioWastMun4100" is a blend of beneficial microorganisms for application to municipal wastewater systems with low-temperature conditions. The addition of "BioWastMun4100" can help maintain COD removal efficiency at low temperatures. The regular addition of "BioWastMun4100" can also help reduce the impact of high infuent COD and hydraulic washouts.

Benefits

Temperature drops impact the biochemical reactions associated with bacterial metabolism and reproduction. Reaction rates typically decrease by a half for each 10 °C (50 °F) drop. This decrease in reaction rate is often first seen as a decrease in oxygen uptake rate (OUR) activity or as a decline in COD removal. It can take months for the microbial community to adapt to low-temperature conditions, causing plant operating problems. "BioWastMun4100" contains beneficial Microorganisms proven to tolerate cold-temperature wastewater applications. By building microbial communities with "BioWastMun4100" just prior to seasonal changes, wastewater operators ensure a safe and fast transition for winter operation. Many wastewater facilities find it diffcult to lower their F/M ratio in cold temperatures as many microorganisms tend to spend their energy on stress-induced cellular maintenance instead of reproduction. Augmenting with "BioWastMun4100" removes this challenge as the microorganisms' reproduction is not restricted.

Performance

In biological treatment systems, cold temperatures impact microbial growth by slowing down the transfer of nutrients across the cell membrane. Bacterial cell membranes contain fatty acids, which may be saturated or unsaturated. Saturated fatty acids congeal at higher temperatures than unsaturated fatty acids. The higher the concentration of saturated fatty acids, the more likely the cell membrane will congeal and become rigid at low temperatures, thereby inhibiting the transfer of nutrients across the cell membrane. The psychrophilic (cold-loving) organisms in "BioWastMun4100" have much higher concentrations of unsaturated fatty acids in the cell membrane. This allows the membrane to stay more fuid at low temperatures and reduces the impact that low temperatures have on nutrient transport.

Genotech has formulated “BioWastMun4100” with naturally occurring microorganisms that have been carefully isolated from low-temperature environments and screened not only for survivability but also for the highest activities in degrading a range of typical constituents found in municipal astewater. With “BioWastMun4100” , wastewater treatment systems can reduce the period of acculmation and ensure that COD removal rates are not lost so that compliance is not jeopardized.

Recommended use

“BioWastMun4100” can be used for multiple applications, including daily dosing to maintain the microbial community’s health during the onset of low-temperature conditions, daily dosing to maintain the microbial community’s health in year-round cold environments, increased dosing in response to temperature fuctuations, and seeding during cold-weather plant start-ups. “BioWastMun4100” bioaugmentation programs generally start 1 month prior to the onset of cold weather. Dosing begins before ambient temperatures reach 4 °C (39 °F) or before wastewater temperatures reach 13 °C (55 °F).

“BioWastMun4100” is added daily directly to the aerobic treatment units. The microorganisms in “BioWastMun4100” perform within the pH range 6.0–9.0, with an optimum near 7.0. The dosage rate for “BioWastMun4100” is dependent on the volume of the biological reactor and the BOD or COD loading in the system. During the initial seeding period, an increased dosage is used to quickly establish the microorganisms in the system. When the microbial community is properly grown, regular dosing is necessary to maintain an accelerated level of biological activity and to continue to minimize upsets. Waiting until after cold weather arrives will likely necessitate increased dosing due to slower acclimation and will vary with operating sludge age.

Product characteristics

“BioWastMun4100” is available as a dry tan powder.

Safety, handling, and storage

Store in a cool, dry place. Avoid inhalation of dusts. Wash hands thoroughly with soap and water after handling. Avoid contact with eyes.

Product data sheet

Valid from: 1-11-11

Product type

“BioWastMun4100” is a ready-to-use blend of microorganisms.

Product specifcations

Components: Microorganisms, bran, sand
Physical form: Dry powder
Color: Tan
Fragrance: No fragrance added
pH: N/A
Properties: Free-flowing
Solubility: Nonsoluble
Shelf life: 1 year

Production method

Microbial strains are produced within a Quality Management System that is certifed to ISO standards. Tight controls and stringent tests are incorporated into the production process to ensure that all products are manufactured to the highest quality standards. Strains are isolates of naturally occurring organisms and are not genetically engineered or modifed.

Available packaging

1/2-lb SoluPak™

25-lb pail

Storage and handling

Store in a cool, dry place at 10–35 °C (50–95 °F). Avoid inhalation of dusts. Wash hands thoroughly with soap and water after handling. Avoid eye contact.

Safety

“BioWastMun4100” contain a blend of safe *Bacillus* microorganisms. All strains have been identifed to a species level by 16s rDNA sequencing and confrmed to belong to Biosafety Level 1, as defned by the National Institutes of Health (NIH). Store in a cool, dry place at 10–35 °C (50–95 °F). Avoid inhalation of dusts. Wash hands thoroughly with soap and water after handling. Avoid eye contact. “BioWastMun4100” contain a blend of safe *Bacillus* microorganisms. All strains have been identifed to a species level by 16s rDNA sequencing and confrmed to belong to Biosafety Level 1, as defned by the National Institutes of Health (NIH).