

Wastewater Solutions

Novozymes BG Max™ 3000

Application Sheet

BG Max 3000 is a biological formulation combining beneficial microorganisms and fast-acting enzymes. BG Max 3000 can be used in a variety of industries that use anaerobic treatment for high-strength wastewaters. It increases biogas generation and improves efficiency of the anaerobic system.

Benefits

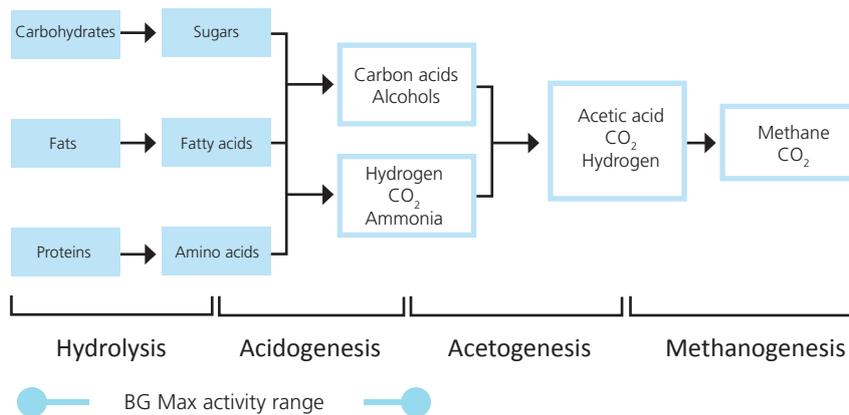
The microorganisms and enzymes in BG Max 3000 were chosen for their ability to generate biogas and increase anaerobic treatment efficiency. As more COD is degraded in the anaerobic treatment stage, more biogas can be produced and less COD gets sent to the aerobic system.

Biogas is a source of renewable energy and can be used as a heat source or converted into electricity. Biogas use can qualify for carbon credits and be traded on numerous credit exchanges. Using biogas is also a sustainable business practice that sends a strong corporate message and generates a return on investment.

Anaerobic wastewater systems are designed to treat high-strength waste streams but are very sensitive to fluctuations in loading, changes in wastewater composition, or changes in the operating conditions. BG Max technology helps to overcome these deficiencies and enhance the system performance.

Performance

Biogas is generated during a four-step biological process. The first step of the process, hydrolysis, results in the conversion of carbohydrates, fats, and proteins to sugars, fatty acids, and amino acids. Following hydrolysis, the acidogenesis step results in the production of carbon acids. The third step, acetogenesis, results in acetic acid, carbon dioxide, and hydrogen. The final step, methanogenesis, is where methane is formed by specific microorganisms called methanogens.



BG Max 3000 is most active in the hydrolysis and acidogenesis steps. The microorganisms and enzymes in BG Max 3000 degrade a wide range of organic compounds, including proteins, fats, sugars, and starches. BG Max contains facultative microorganisms, meaning that they are able to grow in both aerobic and anaerobic environments.

Performance will depend on system and plant specifics. The primary performance benefits for BG Max 3000 are generally linked to the amount of biogas generated and the amount of COD degraded. Anaerobic systems produce less sludge than conventional aerobic activated sludge systems and require less energy. Therefore, any additional COD degraded in the anaerobic system reduces overall solids handling costs and reduces the overall energy demand.

Figure 1 shows the results when BG Max 3000 was added directly to an anaerobic unit for a swine processing plant. The plant experienced a 37% increase in biogas yield.

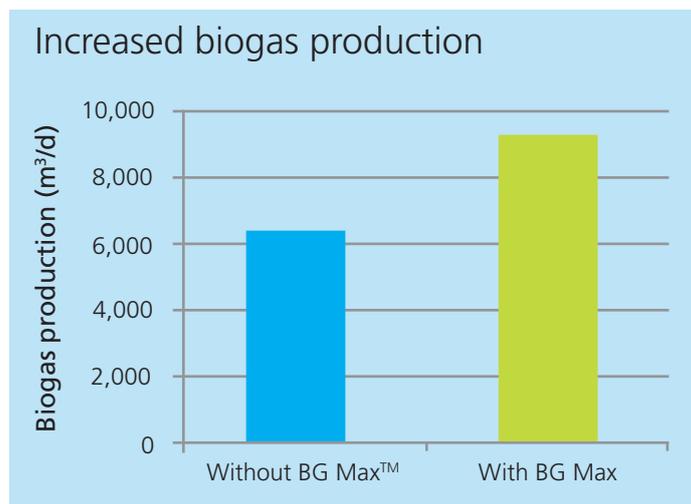


Fig. 1. Biogas production was 37% higher with the use of Novozymes BG Max™ 3000.

Figure 2 shows the COD reduction results of a fruit preserve processor. After adding BG Max 3000, the COD removal efficiency increased by 18% in the anaerobic treatment unit. This stabilized the downstream aerobic system and reduced solids handling costs and energy demand.

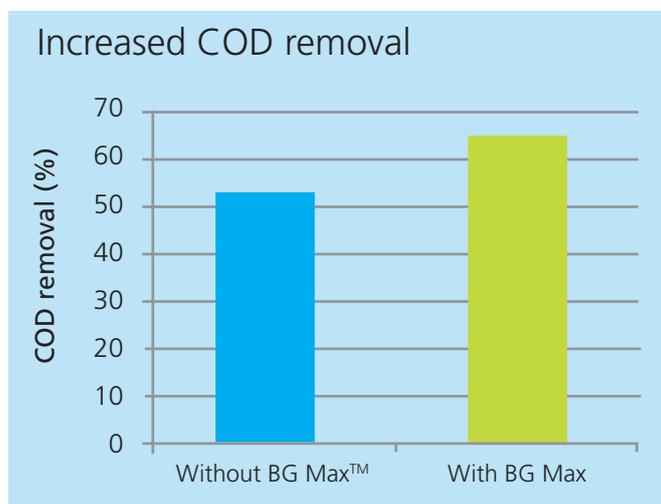


Fig. 2. COD removal was 18% higher with the use of Novozymes BG Max™ 3000.

Recommended use

BG Max 3000 is added daily directly to the influent wastestream just prior to entering the anaerobic treatment unit or lagoon. BG Max 3000 can be used in a variety of industries and treatment system types.

Product characteristics

BG Max 3000 is available as a dry powder packaged in a water-soluble SoluPak™. It has a bacterial count of 2 billion cfu/g. It is designed for use in anaerobic pretreatment units and lagoons.

Safety, handling, and storage

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 contact with eyes.

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