

2011 North American Wastewater Treatment Equipment in Food and Beverage Product Differentiation Excellence Award

High costs of using wastewater treatment equipment have limited its growth in the food and beverage industry. Many small food-processing plants are continuing to delay or postpone purchasing treatment technologies due to the high cost associated with these technologies and instead are paying local disposal surcharges. Despite a mature market, the lack of innovation within the industry has hindered much of the investment for wastewater treatment technology due to companies looking for new product designs and improved design features rather than older solutions. Market maturity is a huge challenge in the wastewater treatment equipment market in the food and beverage industry as existing participating solution providers are established among plant users yet are not developing new products.

Criterion 1: Unique Features/Functionality

The wastewater treatment market in the food and beverage industry is highly competitive. Clean Water Technology, Inc. has stood out by providing a unique patented product for primary wastewater treatment replacing conventional dissolved air flotation (DAF) systems. The GEM system reduces levels of total suspended solids (TSS); fats, oils, and greases (FOG); chemical oxygen demand (COD); biological oxygen demand (BOD); turbidity; and odors.

The GEM system has a smaller footprint and generates excellent results when handling greater contaminant loads, optimizing energy consumption and saving chemical costs. The modular design allows easy relocation onsite for system maintenance and upgrades of older food and beverage treatment plants. The company provides a unique solution that can revolutionize wastewater treatment in the food and beverage industry. The GEM system includes using the most effective water treatment polymers available. Much higher contaminant removal rate is achieved due to higher chemical utilization and chemical efficiency. Key features include:

- 1) Ease of operation and reduced operator time
- 2) Shorter response time for treatment of chemicals
- 3) Produce less sludge as compared to traditional DAF systems
- 4) Provides a 100 percent floatation rate and has the capability to run continuously
- 5) Allows end-users to avoid state disposal surcharges by reducing TSS, BOD/COD, and FOGs to within discharge limits and accommodate changing contaminant levels
- 6) Higher output consistency results in consistent outputs with enhanced reliability

Criterion 2: Quality/Complexity

Solutions in the market provide a typical re-circulation "loop" that is capable of aerating only a portion of the total flow. The GEM system is capable of aerating 100 percent of the raw wastewater stream, offering treatment plants an improved solution. The GEM System utilizes mechanical and chemical energy to efficiently and economically remove contaminants from the wastewater more efficiently. Wastewater is treated in liquid static gas mixer (LSGM) heads so operators can change chemical dosing rates in the LSGM heads and see the effect within seconds. As flocs (solid matter) float independently, operators can start and stop the GEM System for any length of time, without sedimentation build-up.

Criterion 3: Customization

In pursuit of technology differentiation and excellence, the company has progressively developed an innovative and advanced product and has provided demonstrations to clients to evaluate the GEM system's performance on wastewater. This is important to deliver result-driven success to its customer's value-driven initiatives. The GEM system has a standardized design that is more cost-effective and reliable.

The system uses six advanced liquid solid gas mixer (LSGM) cartridge technology for the entrapment of air bubbles and chemical mixing. The cartridge contains a canister and customized removable cartridge inserts depending on the requirements. This allows the mixing of air or water treatment chemicals at any given time and makes it easier to accommodate variable flow rates or to a variable contaminant loading. This feature allows the GEM system to be applied to a variety of treatment plant sizes.

Criterion 4: Matched to Target Market Needs

Clean Water Technology is a high-performing visionary company that focuses on meeting its customers' requirements. A Frost & Sullivan research study entitled "Analysis of North American Water and Wastewater Treatment in Food & Beverage Industry" showed in 2010, the company had a market share of about 26 percent for primary wastewater treatment from the success of the GEM system. The company caters to bakeries, meat processing, dairies, juice processing, and frozen food applications.

The GEM system exhibits innovative and superior-quality solutions with over twelve patents addressing ever-changing needs of its customers. This fulfills requirements for environmental wastewater discharge regulations and reduces capital expenditure. Frost & Sullivan's research reveals it is critical for existing and emerging treatment plants to install operationally efficient equipment. The company has put tremendous efforts in broadening its technology portfolio over 20 years of research and development.

The company can retrofit existing DAF systems and bio-degradation units to lower footprint. The GEM system meets the requirements for primary treatment in the food and beverage industry above and beyond any other comparable products available in the market. The GEM system is cost effective, has high contaminant removal rates, and ensures complete mixing

Criterion 5: Brand Perception

A high degree of customer satisfaction testifies to an efficient, innovative, and excellent product. Clean Water Technology has been successful and instrumental in reducing chemical consumption at customer facilities, enabling customers to avoid surcharges, and reducing sludge charges. Customers who have replaced DAF systems with the GEM system have experienced advantages like increased flow handling and contaminant loading capacity. The GEM system eliminates retention time for contaminant loading, which allows for greater adaptability to a wide variety of flows and high contaminant loadings. As a result, customers in the food and beverage industry have been able to achieve greater energy savings.

Conclusion

The GEM system is a highly advanced and innovative flocculation and floatation system in the wastewater treatment market. Clean Water Technology's innovation with the GEM system has contributed to the industry. Clean Water Technology has surpassed and excelled against its competitors in terms of equipment efficiency, footprint requirements, contaminant removal rates, ease-of-use, more beneficial byproduct generation, and price. The company has been able to capture the market share in primary treatment for the North American food and beverage industry over its competitors by capitalizing on the unique GEM system. Based on Frost & Sullivan's independent analysis of Wastewater Treatment Equipment in the Food and Beverage Industry, Clean Water Technology, Inc. is being recognized with the 2011 North American Product Differentiation Excellence Award.