



Clean Water and Green
Energy Technology for

FOOD AND BEVERAGE

By Global Water Engineering (GWE)

Figure 1: GWE's ANUBIX™-B reactor at Sabormex

A global exporter of diversified food and beverage products, Sabormex, is capitalizing on the benefits of its high-efficiency waste water treatment plant by installing a GWE complete biogas reuse system to replace fossil fuels with green energy. www.globalwaterengineering.com

Founded in 1964 in the city of Puebla, Sabormex ('Mexican flavor') is behind



Figure 2: View of the Concrete ANAMIX™-T Reactor at the Final Stages of Construction.

a large number of well-established Mexican brands including Clemente Jacques (sauces and dressings), La Sierra (canned foods) or Tazza, Garat and Familiar (coffee). These brands are exported to more than 20 countries bringing the authentic Mexican flavor to different corners of the world.

Such diversified production results in very fast and significant changes in the composition and flows of the company's wastewater, which, before treatment, often contains high concentrations of fat, oil and grease and generally high levels of total suspended solids and COD.

Sabormex doubles environmental and profitability benefits with GWE clean water and green energy technology for food and beverage.

In order to deal with the variable characteristics of the wastewater, GWE engineered and installed a robust ANUBIX™-Banaerobic reactor designed for 24 tons of COD per day. This reactor, operating since 2011, has shown consistently very high removals and stable performances.

This plant has been built by GWE's long-standing partner ICR Ambiental from Mexico. ICR specializes in the engineering and construction of projects for water and wastewater treatment, solids digestion and power generation. ICR has partnered with GWE in many projects over the years by engineering and building wastewater treatment plants in Latin America.

All the suspended solids and fats sent to the waste water treatment plant are first separated in a Dissolved Air Flotation installation which generates up to 100 m³ of primary sludge every day. In order to digest this primary sludge, which is very rich in organics, GWE has installed an ANAMIX™-T reactor. This is a thermophilic continuous stirred-tank reactor which achieves high removals of pollutants even while fed with a difficult stream containing high concentrations of fat and solids. Up to 10 tons of COD per day are fed to this ANAMIX™-T, with the system achieving high removal efficiencies of more than 80%.

Startup of this reactor took only a few weeks, thanks to a special seed sludge collected from another GWE ANAMIX™-T which had been operating in Belgium for several years. An innovative method of preserving the activity of bacteria developed by GWE means this seed sludge can be shipped overseas in regular containers.

Following on from the success of the waste water plant, Sabormex has subsequently ordered from GWE a complete biogas reuse system in order to burn the biogas generated by the two anaerobic reactors. This will generate 6,000 Nm³/day of biogas, allowing savings equivalent to up to 8,000 kg fuel oil/day. This plant is also equipped with GWE's state-of-the-art



Figure 3: Pictures of How the Thermophilic Seed Sludge has been Stored Inside a 40' Container for Shipment from Belgium to Mexico.

emergency ground flare with temperature-controlled combustion, which is in line with the stringent emission regulations.

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The quantity of biogas to be produced by Sabormex is equivalent to about 2,650 tons of the fossil fuel equivalent per year, worth more than \$US 2 million in the first year and well over \$20 million in its first decade.

About the Contributor

Global Water Engineering is active in clean water and green energy solutions. Its scope of activities and services cover a wide spectrum of environmental topics such as anaerobic and aerobic wastewater treatment, biogas reuse, renewable energy, green power, carbon credits, bio-ethanol, biomass to energy, bio-waste to energy, sludge digestion, and water recycling. Since its founding more than 22 years ago, GWE has always emphasized the importance of not only considering anaerobic wastewater treatment as a technology to remove the bulk of the organic pollution at much lower operating costs than conventional (aerobic and physico-chemical) methods, but also as a producer of a renewable energy source that should not be flared off but put to use in the factory to replace fossil fuels.

To know more about the contributor, you can write to us. Your feedback is welcome and should be sent at: mayur@eawater.com. Published letters in each issue will get a one-year complimentary subscription of EverythingAboutWater Magazine.