MBR ALLOWS INTERNATIONAL CONFECTIONERY MANUFACTURER TO EXPAND OPERATIONS INTO USA

CLIENT

Morinaga & Co., Ltd is an international confectionery manufacturer headquartered in Japan. Founded in 1899, Morinaga uses advanced technology to produce Hi-Chew, a popular chewy fruit candy. Since its launch in 1975, more than 130 different flavors have been added to the Hi-Chew product lineup.

Technology
ADI® Membrane Bioreactor (MBR)

Sector
Food & Beverage

Location
North Carolina, USA

CHALLENGE

Morinaga's Hi-Chew fruit candies were being made in Taiwan and imported to the United States, but an explosion in popularity in recent years prompted the confectionery company to begin production in America. Morinaga planned to open a new 20-acre production facility in Orange County, North Carolina, USA that would be the first of its kind on U.S. soil.

The new facility required a dependable wastewater treatment system that could treat confectionery wastewater to meet publicly owned treatment works (POTW) discharge limits, helping Morinaga remain environmentally compliant.

SOLUTION

ADI Systems was selected to design, build, and commission a wastewater treatment solution for Morinaga America. ADI Systems proposed to install the ADI® membrane bioreactor (MBR), as this system would provide a reliable, easy-to-operate treatment system that could treat wastewater with high concentrations of sugars and vegetable oil with minimal operator attention.

ADI Systems' involvement in the project included the design, supply, and installation of a complete MBR system, including an equalization (EQ) tank, buffer tank, pre-aeration (PA) tank, modular membrane tank, equipment, instrumentation, piping, and controls.

The space-saving system is designed to treat 20,000 gpd of Morinaga's raw wastewater. The majority of the organic load is removed in the PA tank via aerobic digestion. Due to variations in hourly flow, the PA tank is also designed to provide flow equalization for the MBR system.

The MBR system uses a submerged membrane barrier to provide final solids-liquid separation instead of gravity clarification.

RESULTS

This wastewater treatment system was a necessary ingredient for the confectionery manufacturer to successfully expand into the North American market. The MBR system allows Morinaga to consistently achieve high-quality effluent with low COD (< 50 mg/l), BOD (< 5 mg/l), and TSS (< 2 mg/l). The effluent consistently meets the POTW discharge limits on BOD and TSS.

The compact and cost-effective MBR system requires infrequent membrane cleanings, resulting in reduced operating and maintenance costs. The modular system is easily expandable to handle future increases in flow and load as production at the new Morinaga facility grows.

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