

## **AnMBR REDUCES KEN'S FOODS' OPERATION AND MAINTENANCE COSTS BY 50%**

### **CLIENT**

Ken's Foods is a privately held food manufacturing company located in Marlborough, Massachusetts, USA. For 60 years, Ken's Foods has been making an extensive line of salad dressings, sauces, and marinades.

### **CHALLENGE**

Ken's Foods' wastewater treatment system required an upgrade to treat additional flow and load beyond the treatment plant's design capacity. Lack of space made the upgrade challenging, so Ken's Foods investigated ways of converting its existing anaerobic system. Finding an innovative wastewater treatment technology that could help it meet discharge limits and save on operational costs was also important.

### **Technology**

ADI® Anaerobic Membrane Bioreactor (AnMBR)

### **Sector**

Food & Beverage

### **Location**

Massachusetts, USA



## SOLUTION

Proven performance and cost-effectiveness led Ken's Foods to choose ADI Systems' technology for its wastewater treatment upgrade. ADI Systems designed and built an ADI® anaerobic membrane bioreactor (AnMBR) for Ken's Foods—the first full-scale ADI® AnMBR system installed in North America.

Because the AnMBR combines anaerobic digestion and membrane filtration in one process, the technology could be integrated into Ken's Foods' existing anaerobic treatment system, which increased treatment capacity and significantly improved effluent quality.

The AnMBR consists of a 2.2 MG (8,300 m<sup>3</sup>) circular concrete lead reactor and four membrane tanks fitted with submerged membrane units. It was designed to treat 125,000 gpd (475 m<sup>3</sup>/d) of raw wastewater with influent characteristics of 39,000 mg/l COD, 18,000 mg/l BOD, and 12,000 mg/l TSS.

Additionally, the system produces 200,000 ft<sup>3</sup>/d (5,660 m<sup>3</sup>/d) of biogas, which is stored under a floating, insulated geomembrane cover. The biogas is used to scour membranes, significantly reducing the rate of membrane fouling. The biogas is also used in a boiler to heat the wastewater treatment system to mesophilic temperatures (35°C, 95°F), as well as provide building heat. The excess biogas is flared.

## RESULTS

The AnMBR at Ken's Foods produces a very high-quality effluent with COD removals of 99.3% (190 mg/l) and TSS removal of nearly 100% (< 2 mg/l). The effluent meets all discharge limits and is discharged directly to the local publicly owned treatment works (POTW).

The membranes, which provide separation of the biomass from the liquid, have shown excellent performance; none of the membrane cartridges have needed replacing—even after over five years of operation.

The wastewater treatment system ADI Systems designed and built for Ken's Foods has reduced sludge dewatering and disposal costs, and made the existing system less dependent on macronutrients, polymer, and chlorine.



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