

A Multinational Yeast Company Faces New Effluent Limits With an ADI-BVF® Digester



Mauri Maya, a multinational yeast company, was faced with new effluent discharge limits at its production facility in Turkey. Realizing that the existing treatment system, a conventional activated sludge plant, would be unable to cope with the higher loads associated with an increase in production, ADI Systems Inc. was contracted to install its patented* low-rate anaerobic BVF® digester for pretreatment, as well as to design an upgrade to the activated sludge plant.

The BVF digester, which is especially suited for this type of high-strength industrial waste, was selected on the basis of robustness, low maintenance, ease of operation, and reliability. The pretreatment facility was designed to reduce the loading to the upgraded aerobic treatment system so that the final effluent would meet the new effluent limits.

The system was designed to treat wastewater having the following characteristics:

| <u>Parameter</u> | <u>Value</u> |
|------------------|--------------|
| BOD (mg/l) | 12,700 |
| SS (mg/l) | 1,000 |
| TKN (mg/l) | 1,200 |

Since start-up in May 1995, performance has met or exceeded expectations, with a BOD removal typically 97 percent.

The treatment system now produces a cleaner effluent, with the following removals achieved in the anaerobic reactor alone:

| <u>Parameter</u> | <u>Infl.</u> <u>(mg/l)</u> | <u>Effl.</u> <u>(mg/l)</u> | <u>Removal</u> <u>(%)</u> |
|------------------|-------------------------------|-------------------------------|------------------------------|
| BOD | 12,000 | 300 | 97.5 |
| SS | 750 | 300 | 60.0 |

*US Patent Nos. 5,505,848 and 5,587,080

The removal of BOD in the anaerobic system has allowed the upgraded activated sludge plant to operate within its capacity, as well as nitrify a large ammonia loading, thereby reducing oxygen demand on the receiving river.

A key feature of the system is that biogas is recovered as it is produced and then delivered to a boiler to be used as a fuel alternative to oil. At the design loadings, biogas displaces approximately 24 percent of the production plant's annual oil consumption. This allows a savings of over 150,000 US dollars per year.

ADI provided all engineering services, from conceptual design through facility commissioning and start-up, assistance during construction, process and detail design, controls, specifications, drawings, production of operating manual, and follow-up services. In addition, the proprietary equipment for the digester was supplied and installed by ADI.

ADI Systems Inc.

1133 Regent Street, Suite 300
Fredericton, NB E3B 3Z2 Canada
Internet: www.adisystemsinc.com
Phone: 506.452.7307 Fax: 506.452.7308
Toll-free: 800.561.2831 (USA/Canada)

Branch office:

PO Box 397, 7 Pointe Sewall Road
Wolfeboro, NH 03894 USA
603.569.0955
E-mail: systems@adi.ca