ANOXKALDNES

Leprino Foods - Roswell, NM, USA

The Client

Leprino Foods Company is the world's largest producer of premium quality mozzarella and the largest US exporter of whey and lactose products.

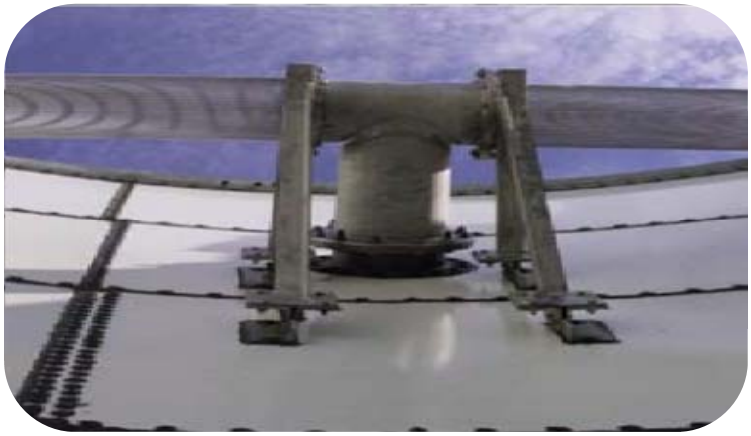
Key Figures

Flow:	126 m^3/h Average 0.8 MGD
BOD:	10,590 kg/d
COD:	15,575 kg/d
TSS:	3,026 kg/d
TKN:	333 kg/d
NH_3-N:	45 kg/d
Temperature:	25°C -40°C

The Client's Needs

Leprino's existing wastewater treatment system was an extended aeration activated sludge process designed for 8,620 kg/d of BOD but was being overloaded at times to >13,600 kg/d during spill events in the factory. The overloading did not make operation of the existing system easy. Polymer addition was required to ensure settling of MLSS in the clarifier, which increased treatment costs.

The use of mechanical aeration devices in addition to a fine bubble aeration system was required to maintain a positive dissolved oxygen concentration in the basins which translated into extra costs for the treatment facility. The ultimate challenge was to add a beneficial treatment system which would complement the existing treatment system and provide for stable operation.



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The Process

An AnoxKaldnes MBBR was designed as a pre-treatment step ahead of the existing activated sludge system. The MBBR is designed to serve as a buffer to the activated sludge by removing 30-40% of the easily biodegradable organic matter.

In operation, the AnoxKaldnes™ MBBR effluent flows directly, via gravity, into the two (2) parallel activated sludge basins, which consume the remaining organic matter contained within the wastewater.

The Result

Performance of the AnoxKaldnes™ MBBR has been excellent. The AnoxKaldnes™ MBBR has removed an average of 56% of the soluble COD load from the wastewater. Operationally, the downstream activated sludge system has significantly improved operation, using less mechanical aeration, polymer for settling and anti-foam in aeration basins. The table shows data from the first 2 months of start up.

Parameter	SCOD	TSS	NH_3-N	NO_3-N	TDS	TP	Chloride
Influent	2,290	1,026	12,5	58,1	4,167	89,4	383
Effluent	1,004	1,758	9,17	43,9	3,582	113	328

Operationally, the plant has significantly improved operation overall. The polymer usage in the secondary clarifiers has been completely turned off due to the improved settling rates of the MLSS in the clarifier.

Return sludge pumping rates have decreased due to the increased concentration of settled MLSS in the clarifier. In addition, because of better settling rates, the surface aeration devices have been turned off since the extended aeration basins are now capable of maintaining a positive dissolved oxygen concentration (>2 mg/L). The reduction in use of all these items has a positive effect on the cost of treating the wastewater resulting in a cost savings for Leprino Foods WWTP.

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For further information:
AnoxKaldnes AB
www.anoxkaldnes.com
sales@anoxkaldnes.com
Tel: +46 (0)46 182150