

F&A DAIRY UPGRADE DAF WITH CLEAN AND EFFICIENT NANOBUBBLE GENERATOR

Since 1965, F&A Dairy Products, Inc. has manufactured and distributed mozzarella and provolone cheeses throughout the US and currently operates two facilities, one in Wisconsin and the other in New Mexico. Aging wastewater equipment at the New Mexico production facility was impacting their pretreatment process and quality. To solve this growing problem, F&A Dairy Products elected to upgrade their Dissolved Air Flotation (DAF) pretreatment system to improve the quality of their wastewater.

After evaluating potential solutions, F&A selected Moleaer's nanobubble generator to replace the DAF's high-pressure dissolution system. Moleaer's nanobubble technology provides a lower cost and higher level of treatment compared to high-pressure dissolution systems for treating a creamery's high strength wastewater. Additionally, the simplicity of retrofitting the existing DAF with a nanobubble generator was important to F&A Dairy. Replacing the DAF's old high-pressure dissolution aeration system was quick and easy. The single 200 XTB nanobubble generator was installed in two hours and immediately reduced their previous energy usage from 275 kw per day to 91 kw, resulting in projected annual energy savings of over \$6,000.

Client:

F&A Dairy Products, Inc.

Type:

Dissolved Air Flotation (DAF)

Unit Type:

200 XTB

Installed:

April 2018

Benefits:

89.6% Reduction in BOD₅

99.7% Reduction in TSS

Daily Flow:

187,000 GPD (gallons per day)

DAF Capacity:

10,000 gallons



Moleaer's Nanobubble Generator integrates seamlessly into existing DAF.

The Moleaer nanobubble generator provides several benefits over traditional air flotation technologies. First, the bubble size produced by the nanobubble generator is ~80 nanometers (nm) in size. This provides more than 200 times the interfacial surface area when compared to ultra-fine microbubbles. Additionally, nanobubbles have a negative surface charge that is significantly greater than all micro- and macrobubbles. The combination of a nanobubble's larger surface area and negative surface charge increases the attraction and collision rate with suspended particles, resulting in a higher percentage of particles attaching to the flocs and consequently being removed from the wastewater.

In the case of F&A Dairy Products, Moleaer's nanobubble technology enabled them to achieve treatment levels never before experienced. Influent BOD₅ was reduced by 89.6% and Total Suspended Solids (TSS) was reduced by 99.65%. These improvements have led to a more efficient, reliable, and lower-cost wastewater treatment process, allowing F&A to focus on their core business of making cheeses.



F&A's DAF effluent before and after treatment with nanobubbles.

"Naturally, treatment performance is very important to us, but honestly the thing that I like the most about the nanobubble generator is that it adds a tremendous amount of reliability to our treatment process," said David Carrillo, F&A's plant operator. "Our wastewater make-up changes frequently depending on what cheese products are being produced. It's very impressive that, no matter what comes down the pipe, the Moleaer system is able to consistently maintain a much higher quality effluent than what we had before. That cuts down my man hours managing the DAF equipment and allows me to focus on other areas which is more valuable to me and this facility."

www.moleaer.com