



## CASE STUDY

Customer: Guggisberg Cheese

Location: Sugarcreek, OH

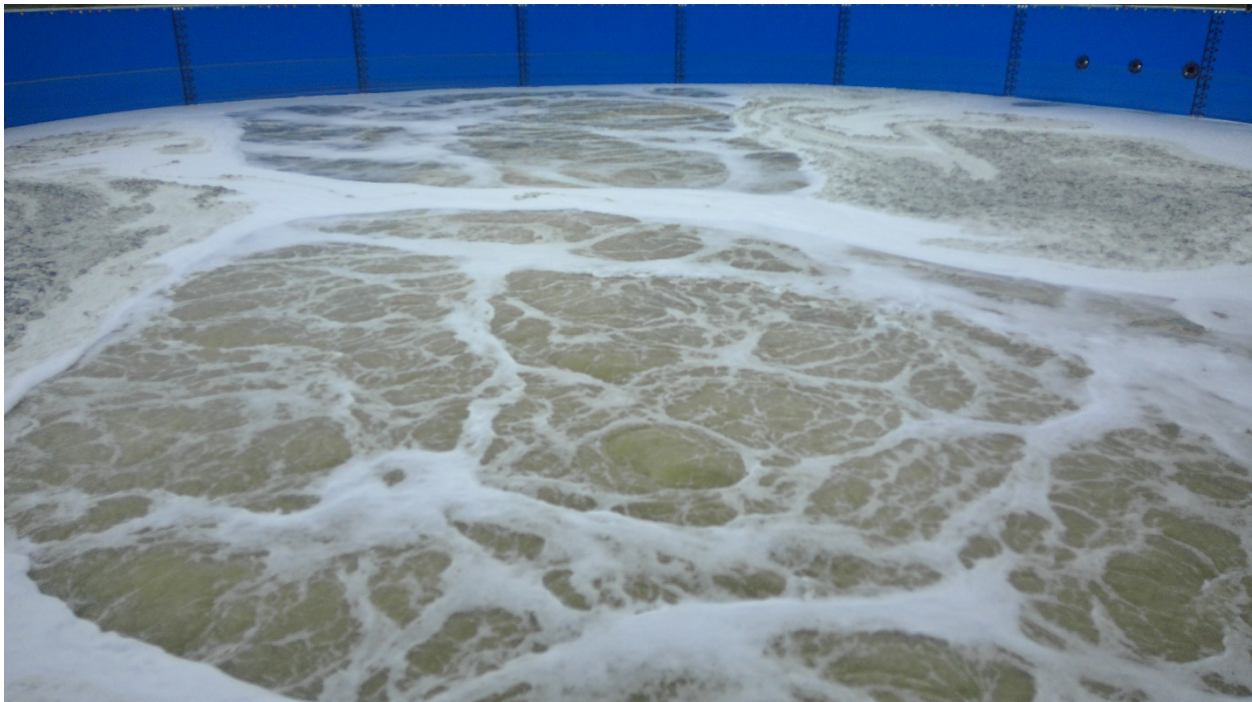


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Product: MTS Jet Aeration System

Application: MBR Biological Treatment Aeration Tank



Guggisberg Cheese built a new production facility located in Sugarcreek which specializes in the production of the award winning "Baby Swiss" cheese.

In 2017, Guggisberg Cheese installed an external tubular MBR System that was equipped with an MTS Jet Aeration System. The MTS Jet Aeration System was sized and designed to biologically treat up to 300,000 GPD of production process wastewater with a MT4JM-14 bi-directional jet aeration system to provide efficient mixing and aeration of the MBR MLSS.

The goals and objectives of the MBR system was to meet direct discharge requirements into the Sugar Creek meeting and surpassing stringent direct discharge parameters for BOD, COD, Ammonia-Nitrogen and Phosphorus. The Jet Aeration System was chosen to provide "maintenance free" operation of the MBR Aeration Tank since the MBR System was required to operate 24 hours per day/ 7 days per week.

- **Process Water:**

**100,000 GPD @ 3000 mg/L BOD (3,597 ppd)**



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- **COW Water:** 200,000 GPD @ 150 mg/L BOD (125 ppd)
- **Total Wastewater:** 300,000 GPD @ 1,487 mg/L BOD (~3,722ppd)

Eric Phillips of Envirotech operates and maintains the MBR plant for Guggisberg Cheese states, "The MTS Jet Aeration System has been operating for ~3 years with no "in-basin" maintenance to date. The system has handled organic loading conditions that are anywhere from 1.5 - 2 times the process design loading. During periods of high load conditions upwards of 10,000 mg/L COD, the jet aeration system maintains aerobic conditions and we are able to maintain a discharge quality of less than 3 mg/L BOD. We have recently purchased a spare circulation pump to have on the shelf to provide quick response times for any pump maintenance requirements with minimal system down time."

**Process Description:** Equalized wastewater is pumped from an automated self-cleaning screening primary screen system and directed to the aeration tank sized for ~184,000 gallons @ a 10' SWD for aerobic biological treatment. The MBR system operates with an average mixed liquor suspended solids content of 8,000 – 12,000 mg/L MLSS for high rate biological treatment. The Jet aeration Pump takes suction from the aeration basin via a suction bell and returns it back to the tank through a fiberglass manifold equipped with a set of fourteen bi-directional jet nozzles. The wastewater is pumped through inner nozzles at high kinetic energy and velocity. A set of process air blowers provides air to the jet nozzles where the air is introduced to an outer nozzle where the process air is introduced and the wastewater and air are subjected to a high velocity implosion creating microbubbles that are dispersed into the wastewater. The oxygen uptake by the bacterial microorganisms of the mixed liquor suspended solids occurs at a high oxygen uptake rate for a high rate biological digestion process.





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