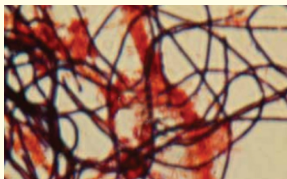




BioPro FOG Case Study: Microthrix Parvicella Bulking and Foaming

Background

A municipal wastewater treatment facility using a sequencing batch reactor (SBR) was dosed with BioPro FOG. Results included reduced Microthrix parvicella foam, strengthened floc structure and improved settling.



Microthrix Parvicella

The case study was conducted at a municipal wastewater SBR facility that treats approximately 0.35 million gallons per day (MGD). There is screening ahead of an equalization basin that feeds the SBR. Water leaves the SBR during the decant cycle, followed by UV disinfection prior to discharge.

Objectives

To demonstrate treatment with BioPro FOG to:

- Reduce Microthrix parvicella foaming
- Strengthen floc structure
- Improve settling

Applications

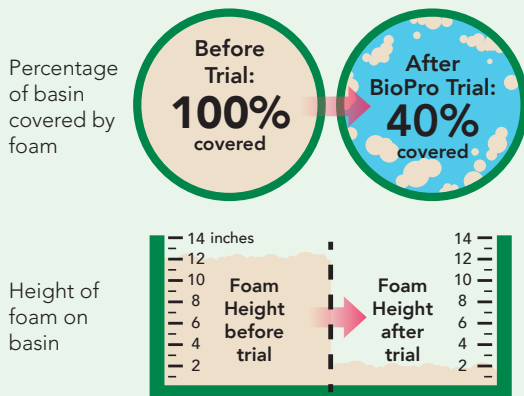
The case study was conducted over an 8-week period. Dosing was accomplished by adding water soluble bags of BioPro FOG in accordance with the prescribed daily dosing schedule. No operational changes were made during the case study. Temperature and flow rate was monitored and consistent throughout case study. Operational staff wasted sludge based on a target MLSS concentration.

DATE	DOSAGE
Week 1	1 ppm
Week 2	2 ppm
Week 3	3 ppm
Week 4	3.5 ppm
Week 5-8	2 ppm

Results

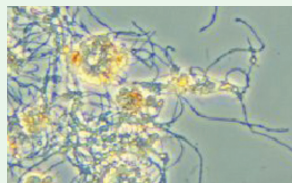
- 20% reduction of SVI
- 60% reduction of foam coverage on basin
- 85% reduction of foam height
- SVI or foaming did not increase after dose was lowered to maintenance levels
- Microscopic evaluation showed improved strength in floc structure

Less sludge wasting was required by operators to meet target MLSS during BioPro FOG treatment resulting in longer sludge age. Even though Microthrix typically thrive in longer sludge ages, their abundance still decreased. Reduction in sludge yield was likely but could not be verified.

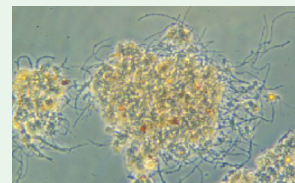


MICROSCOPIC EVALUATION

Weekly microscopic evaluations were conducted regularly throughout case study. During BioPro FOG treatment there was an observed reduction in Microthrix parvicella abundance in the mixed liquor and flocs appeared to strengthen. This corresponded with reduced SVI.



Beginning of case study



End of case study