Case Study: AquaPure™ Bio

A Bug in the System: Using Bacteria to Treat Industrial Wastewater

The Challenge

A metal extrusion company found itself having issues with its Biochemical Oxygen Demand (BOD) in its wastewater treatment operation due to surfactants disrupting the bacteria.

Specifically, the company was treating rinse water that contained surfactants with biologics and related chemistries and, over a period of time, found their treatment process was having a less-than-desired effect.

They approached Hubbard-Hall with a need for a better culture that is more surfactant-resistant than what they had been using.

The Approach

Hubbard-Hall technicians began investigating the company's wastewater treatment system and learned it was running 16 hours a day with a flow rate of 3,900 gallons per hour (GPH), equaling a total of 62,400 gallons per day (GPD). The company told Hubbard-Hall it wanted to resume 24-hour operation, which would take them to 93 600 GPD.

Because their existing treatment system was not able to handle the surfactant loading from the rinses on the process line, the company began limiting the flow of rinses from the process lines and also stopped putting the floor scrubber/mop water into the system. The shop manager told Hubbard-Hall that he wanted "Bacteria that can

Treating
the Hard to Treat

Executive Summary

AquaPure Bio products cost-effectively solve Biochemical Oxygen Demand challenges.

- BOD was 'non-detected, and rinse water remained clear after one week
- Three months after seeding BOD was zero while TSS was almost 'non-detect.'
- Products kept the BOD below 10mg/L
- Products cost was $2,000 less than previous supplier.

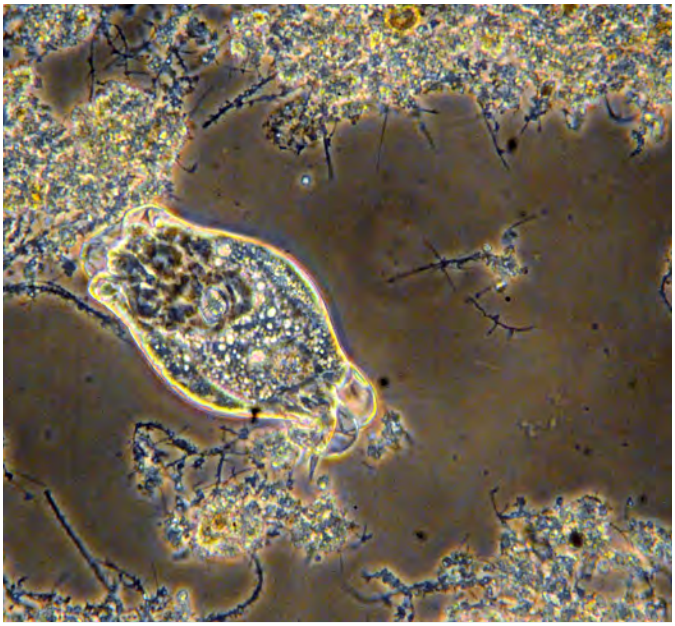
degrade surfactants, without having to constantly babysit the system."

After completing the investigation of the company's system, Hubbard-Hall's team had accumulated the following information:

- Updated flow chart of wastewater process.
- Data on flow rates, equipment sizes, and recycle loops.
- Sample information for the previous six months of operation.

Based on the information from the investigation and sampling, Hubbard-Hall's team suggested Aquapure Bio 20 for the company's wastewater system. The product is a broad spectrum of selected and adapted psychrophilic microbial cultures designed to degrade hydrocarbon industrial wastes. Aquapure Bio 20 enhances TOC, COD, BOD, and TSS removal in industrial or joint municipal/ industrial wastewater treatment plants operating under a wide range of operating temperatures. In addition, the cultures in Aquapure Bio 20 are capable of degrading wastes containing strong organic matter and semi-toxic compounds that interfere with normal biomass activity. Biomass optimization with Aquapure Bio 20 will allow for the effective treatment of complex organics such as phenols, alcohols, surfactants, detergents, glycols, naphthalene, amines, nitriles, aliphatic and aromatic hydrocarbons, ketones, cutting oils, styrene, and low levels of cyanide.

The Aquapure Bio 20 seed rates are usually 4 pounds a day for 5 days, followed by 2 pounds a day for 5 days, for an initial application of 30 pounds in 10 days. The company then applied maintenance doses of 1 pound every 4 days; if there was a decrease in effluent quality on this schedule, they were instructed to go to 1 pound every 2 days.



The Outcome

Almost immediately, the company began to see results. The day after seeding the system, they ran tests that showed the BOD as 'non-detected,' and the company managers reported that the rinse water still remained "crystal clear" even after a week.

The company was also prescribed to use Aquapure Bio 230, a balanced powdered blend of inorganic salts of nitrogen and phosphorus that

act as readily available macronutrients for microbes to create optimal biomass growth conditions and maintain resilient biomass.

In a periodic check-up some three months later, the company reported that for the third testing period in a row, the BOD was zero while the TSS was almost non-detect. The department manager reported that he "had never seen it this good in his entire time working" for the company. "He is extremely pleased with the Aquapure Bio 20 and Aquapure Bio 230 combination," a Hubbard-Hall technician reported.

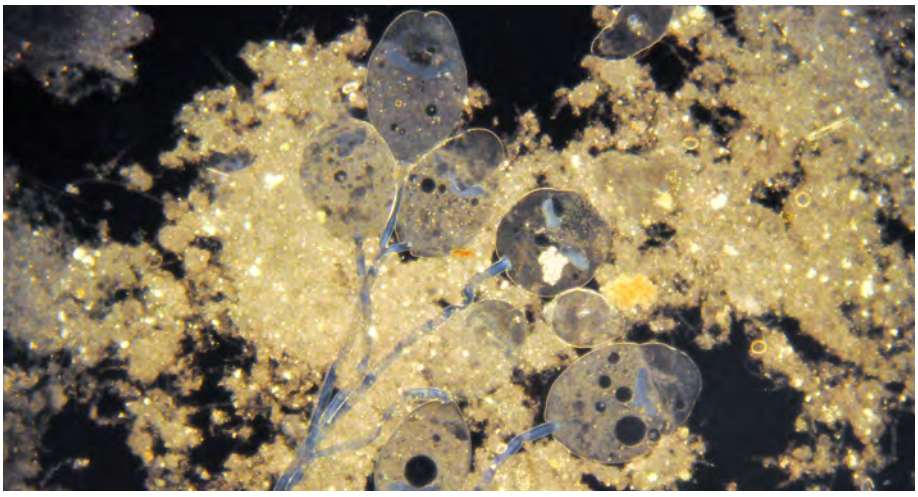
The company has continued to use the Aquapure bacteria blends at the facility, and while they have reseeded upon occasion due to killing the bio-mass with unscheduled chemical dumps or spills, they are overall incredibly happy with the process put in place to replace the former process that was failing them.

In addition, the Hubbard-Hall products were about $2,000 less than the cost of the products the company had been using that had been causing issues.

"The success was we saved them money year over year, and our blend kept the BOD numbers below 10mg/L for their discharge limits," says Robin Deal, Product Manager for Aquapure.

"Metal finishers have a huge impact on the environments we work in and a responsibility to their community to ensure their effluent meet all requirements."

Robin Deal
Product Manager, AquaPure
Hubbard-Hall



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