

Rapid Incident Treatment - MicroCat®-HX use in a Dairy with a SBR wastewater treatment plant

QM study #112

Plant description

The SBR system consists of a 80 m³, 100 m³ and 400 m³ of container. The 80 m³ and 100 m³ containers are filled alternately as a template container. During the filling, the containers are partly (15/15 min) aerated. The 400 m³ container is operated as a SBR reactor. The treatment cycle is 6 hours, max. O₂ level is set to 1.5 mg/l. When decanting the excess sludge is discharged in the first 5 minutes.

Treatment Objective

The biomass of the treatment plant was destroyed by an anomaly. The objective was to return to a stable operation of the wastewater treatment plant in the shortest possible time. After a study of the technical plant data, laboratory study and microscopic examination, the optimal MICROCAT® product was selected together with the manager and the responsible operator of the wastewater treatment installation of the customer. MicroCat® HX has been selected because of the special blend of preselected, adapted microorganisms and special activated carbon as carrier and adsorbent.

MicroCat® HX combined interaction of the following factors: The adsorption on the one hand and the ability to immobilize the toxic substances on the other hand which is made possible by the special, powdered activated carbon together with the increased biodegradability of the preselected and adapted microbial strain cultures.

Application Program

The following treatment program with MicroCat® HX was proposed:

Day 1: Cycle 1 and Cycle 2 each 2 bags (each 450g, water soluble packaging) MicroCat® HX

Summary

MicroCat®-HX application in a SBR wastewater treatment installation of a dairy plant

- Rapid restoration of the biological activity after a fault in the system
- After seven days from zero to 100% performance
- Easy to use
- Assistance from experts in a difficult phase

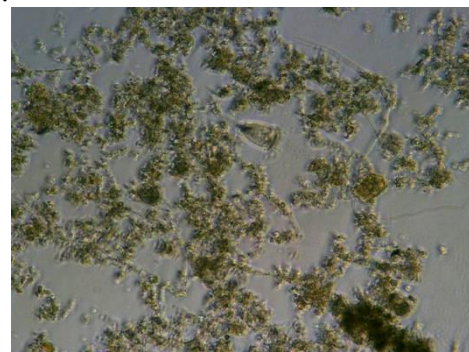
Day 2 to day 6: 1 each bag (per 450g) MicroCat® HX

The aeration time was maximized and the max. O₂ concentration increased to 2.0 mg / l.

The biological sludge from the tanks was examined with the microscope every 2 days, COD and pH were checked daily.

Results

After four days, a reduction of COD from 8200 mg / l to 5500 mg / l was measured. The microscopic examination demonstrated the return of higher life forms (Vorticella, Ciliates).



Microscopic photo of biomass, 7 days after the start of MicroCat-HX use

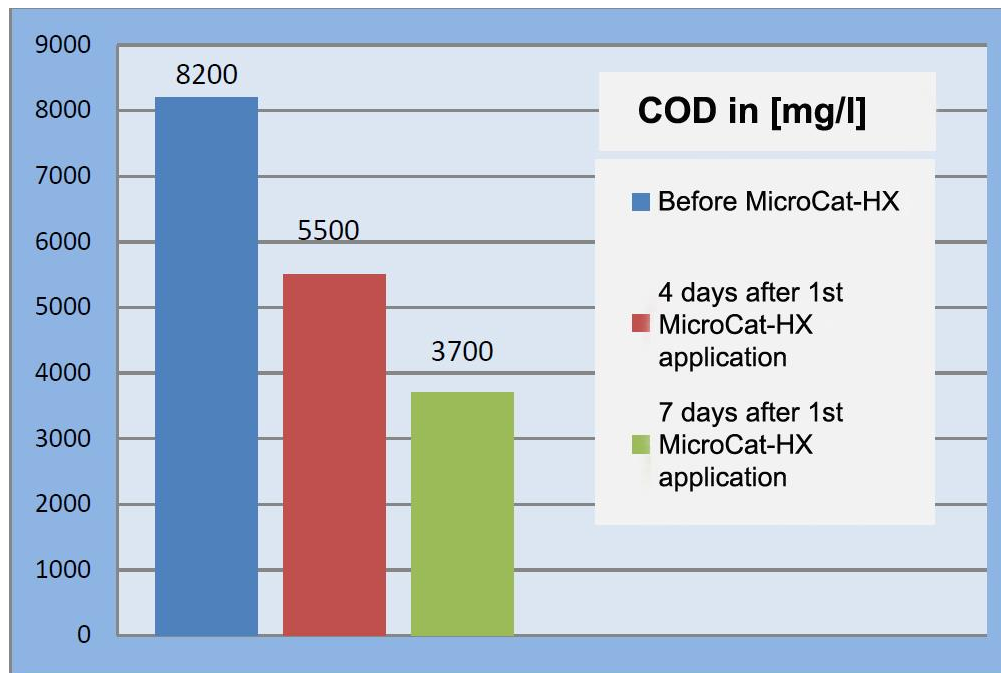
After seven days, the system performed perfectly again and the effluent concentrations were well below the limits for discharge into the local sewer network and municipal wastewater treatment plant.

Conclusion

Without the use of MicroCat® HX all the sludge would have to be pumped out of the SBR reactors and disposed of by a specialist company. After this procedure the unit would have to be started up again, which takes about 6

weeks based on textbook and local experience. The production capacity of the dairy plant would have to be reduced considerably during this period.

Through the use of MicroCat® HX no costs for sludge disposal were incurred, the downtime of the treatment plant was reduced to just 7 days. It should be noted that the production of the dairy plant during this period was not reduced.



Graph of effluent COD development during treatment. >50% reduction after 7 days.