

CASE STUDY # 023

PULP AND PAPER PROCESSOR CONTROLS BOD UTILIZING BIOAUGMENTATION

SUBJECT:

Reduction of biochemical oxygen demand (BOD) and stabilization of operating parameters in a paper processing wastewater treatment plant.

PRODUCT APPLIED: **MICROCAT-XP Pulp and Paper Waste Bioformula**



TREATMENT SYSTEM:

1. Equalization
2. Clarification
3. Submerged Fixed Film Reactors
 - a. Flow = 378.5 m³/day
 - b. (2) 75.7 m³ tanks
 - c. Secondary clarification

OBJECTIVE:

To reduce the BOD fluctuations associated with a variable wastestream and to improve overall system performance.

PROGRAM:

MICROCAT-XP was added to the bioreactors in a start-up dosage mode (see table I). Microscopic examination of the biomass was undertaken and monitored during the course of **MICROCAT-XP** application. The dosage schedule was decreased to a maintenance dosage rate once the biomass exhibited improved biomass characteristics and stable operation.

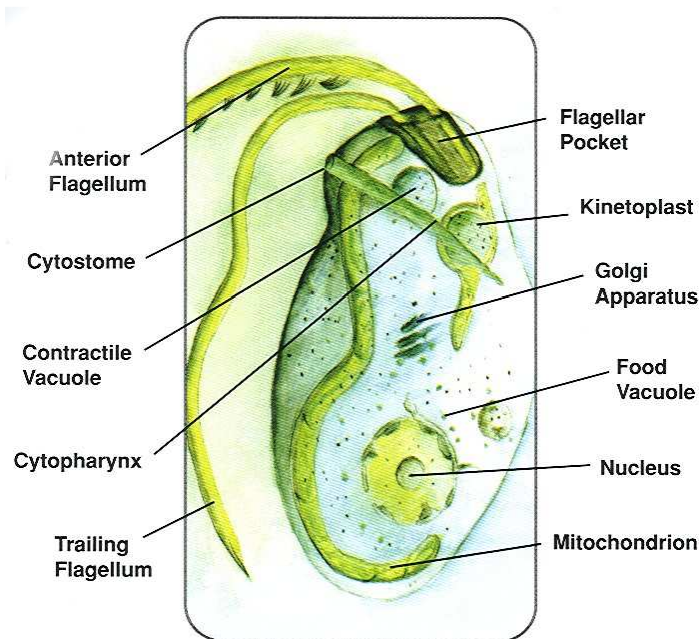
Table I. Microcat-XP Start-up and maintenance dosage rates

Day 1 & 2	2,3 kg XP per day
Days 3 - 10	1,5 kg XP per day
Days 11 - 20	0,380 kg XP per day
Daily maintenance dose	0,15 Kg XP per day

RESULTS:

Microscopic examination of the fixed film indicated an increase in free bacterial counts and an improved higher lifeform population of stalked ciliates and rotifers that were not associated with the biomass prior to microbial addition. Monthly microscopic examinations of the system's fixed film continue to exhibit improved biomass characteristics. The effluent BOD from the pulp and paper wastewater treatment plant has been consistently below permit limits despite flow variations (due to processing schedules) and varying winter and summer temperatures.

BODO



CONCLUSIONS

The **MICROCAT -XP** bioaugmentation program was successful in achieving the treatment objectives by improving the treatment plant biomass and achieving consistent BOD removal. To insure continued plant performance maintenance dosages of **MICROCAT-XP** are followed.