

SCD Probiotics®

Case Study Summary – Improving the efficiency of urban wastewater treatment facility using SCD Bio Klean™ in Łowicz, Poland

Wastewater - Sludge reduction and cost savings (CSS-027-2006)

Page | 1

Industry:	Wastewater (sludge reduction)
Application:	SCD Bio Klean™ added to the sludge
Where:	Łowicz, Poland
When:	Since 2006
Product:	Customized solution using SCD Bio Klean™
SCD Customer:	ProBiotics Polska, SCD Probiotics® Licensee

Background

Problems encountered in the wastewater treatment facility in Poland were addressed SCD Bio Klean. Positive improvements of the parameters were seen after product application.

Introduction

At municipal wastewater treatment plants raw municipal wastewater undergoes treatment to yield treated effluent and a concentrated stream of solids in liquid, called sludge. The sludge is treated as required for utilization or disposal, and additional treatment of effluent may be needed to accommodate specific water reuse opportunities. In a wastewater treatment plant located in Poland, they have encountered a sludge production issue and there was a need to improve the efficiency of urban wastewater treatment facility in the area.

Common parameters that present problems in wastewater operations include COD (chemical oxygen demand), BOD (biological oxygen demand) and TSS (total suspended solids). COD values indicate the amount of organic compounds in water; BOD pertains to the amount of dissolved oxygen needed by aerobic biological organisms to break down organic materials present in a given water sample at certain temperature over a specific time period; and TSS is the dry-weight of particles trapped by a filter. These are all used to indicate water quality where lower values means good water quality. Initially, parameters measured in Łowicz wastewater facility were high in COD, BOD and TSS (refer to Table I on the next page). To address these problems, researchers decided to use a natural product to be included in the operations. This product is made through the concept of SCD Probiotics Technology, which is made through a natural fermentation process, is not chemically synthesized or genetically engineered.

Objectives

The specific objectives that the researchers would like to achieve at the Wastewater Treatment Facility in Łowicz included:



1. Suppress application of coagulant agent
2. Reduce sludge production
3. Improve outflow parameters (see Table I below)
4. Financial savings due to increased operational efficiencies

Table I: Mean wastewater characteristics (2005) prior to SCD Probiotics Applications.

Daily inflow [m ³ /day]	Production [m ³ /day]			Inflow [mg/dm ³]				
	Screenings	Sand	Sludge	TSS	COD	BOD	P	N
8653	80.5	175	9006	394	1315	628	5.37	50.6
				Outflow [mg/dm ³]				
				TSS	COD	BOD	P	N
				52	76.6	13.2	1.18	8.56

Methodology

SCD Bio Klean was added to the sludge separated from the system. A fraction of amended sludge was re-circulated in to the general system to improve the characteristic of the outflow water.

This facility had an average daily inflow of 1500 m³ or 3,968,171 gallons/day to be treated. Initial daily treatment dosage prescribed was 1:50000 with 79 gallons of SCD Bio Klean applied as the “shock treatment.” The shock dosage was gradually reduced to the current maintenance treatment application rate of 1:165000 with 24 gallons of SCD Bio Klean used daily. The maintenance treatment dosage prescribed was based on monitoring the results of the daily inflow.

Results

All goals were achieved. Significant improvement in all outflow parameters (except Nitrogen content) occurred after SCD Probiotics applications, as shown in **Table II**.



In addition, the following benefits were achieved as a result of SCD Probiotics and SCD Bio Klean application, which positively impact the operational and financial performance of the wastewater treatment facility.

1. Elimination of PIX application (a coagulation agent)
2. A 25% reduction in overall sludge production
3. Cost reductions:
 - 200.000 PLN (\$50,000) from disposal cost reduction per annum
 - 30.000 PLN (\$8,000) savings on environmental fees caused by decreased water contamination per annum

Table II: Mean wastewater characteristics (2008) after SCD Probiotics Technology Application.

Daily inflow [m ³ /day]	Production [m ³ /day]			Inflow [mg/dm ³]				
	Screenings	Sand	Sludge	TSS	COD	BOD	P	N
9625	65	133	7955.5	219	822	341	6.82	44.2
				Outflow [mg/dm ³]				
				TSS	COD	BOD	P	N
				15	64.5	7.37	0.69	9.55

Conclusions

The trial showed improvements on almost all wastewater characteristics measured in the study. This implies that production is not more efficient at said operation with a daily investment of \$182/day or \$0.00005/gallon of wastewater to be treated. In different locations with different wastewater facility designs, results may vary; however in general, most parameters involved in wastewater facility should provide positive results.

