

SCD Probiotics®

Case Study Summary – SCD Bio Klean™ used to improve the efficiency of urban wastewater treatment facility in Turek, Poland

Wastewater – Sludge reduction (CSS-028-2005)

Page | 1

Industry: City Government, Public Works
Application: SCD Bio Klean™ added to the sludge
Where: Turek, Poland
When: 2005 - 2008
Product: Customized solution using SCD Bio Klean
SCD Customer: ProBiotics Polska, SCD Probiotics® Licensee

Background

Wastewater treatment facility challenges on outflow parameters were faced with the application of SCD Bio Klean by adding it directly to the sludge. Parameters prior to product application and after SCD Bio Klean application provided different results with the improved parameter values.

Introduction

Wastewater treatment facilities face many challenges that impact the operational efficiency of the system. Common issues include: wastewater quality, foul odors that negatively affect surrounding communities, difficulties with sludge removal, clogged drains due to sludge, and difficult working conditions for staff.

As an objective of the study – all outflow standards established by Environmental Regulation Standard By EPA must be met; further reduction of baseline outflow results is desired (see **Table I** and **Table II**).

Table I: Environmental regulation standards

Parameter	Unit	Outflow Standard
Chemical Oxygen Demand (COD)	mg/dm ³	≤ 125
Biological Oxygen Demand (BOD)	mg/dm ³	≤ 15
Total Suspended Solid (TSS)	mg/dm ³	≤ 35
Nitrogen (N)	mg/dm ³	≤ 15



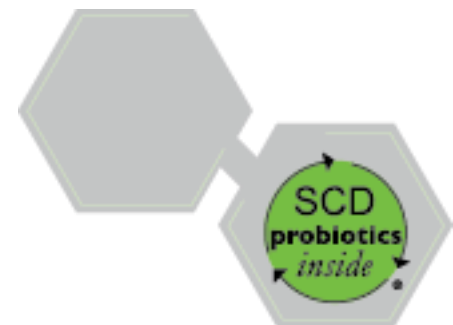
Parameter	Unit	Outflow Standard
Phosphorous (P)	mg/dm ³	≤ 2

Table II: Mean wastewater characteristics (2004) prior to SCD Probiotics applications.

Daily inflow [m ³ /day]	Production [t/year]			Inflow [mg/dm ³]				
	Screenings	Sand	Sludge	TSS	COD	BOD	P	N
8435	158.1	107.8	711.0	237.2	802.6	534.5	13.5	60.1
				Outflow [mg/dm ³]				
				TSS	COD	BOD	P	N
				16.4	58.4	8.1	1.1	11.3

Methodology

The wastewater treatment plant in Turek, Poland has a daily capacity of approximately 15,750 cubic meters a day. Daily influence reaches from 8,500 – 10,500m³/day. SCD Bio Klean is added at a dilution range of 1:2,000 to 1:10,000 (probiotics: sludge water) to the sludge once it was separated from the water inflow. A portion of sludge is re-circulated into the system at the beginning of the process.



Results

Significant improvement in all outflow parameters occurred with approximately 40 - 65% reduction in outflow parameters compared to mean baseline parameters (see **Table III**).

Table III: Mean wastewater characteristics (2008) after SCD Probiotics application.

Daily influence [m ³ /day]	Production [m ³ /day]			Influence [mg/dm ³]				
	Screenings	Sand	Sludge	TSS	COD	BOD	P	N
8222.0	11.7	105.0	741.1	318.6	970	458	13.3	64.6
				Effluence [mg/dm ³]				
				TSS	COD	BOD	P	N
				5.0	35.8	2.7	0.5	5.6

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

1. The structure of the sludge changed from greasy to porous. Consequently, transportation of the sludge became easier.
2. The pathogenic microbes were conceivably decreased which accounted for the removal of foul odor and improved sanitary working conditions.
3. The amount of coagulation agents used was reduced by 35 - 40%.
4. The lime previously applied to the sludge was entirely removed during the hygienization process.
5. The pontoons formerly used to cover the open digestion chambers are no longer in use.
6. The clogging of the drainage system from sludge deposit sites was eliminated.
7. The interest in applying sludge for farming needs and soil restoration significantly increased.
8. They saw a reduction in operational cost while using the product.

Conclusions

Trial results imply that SCD Bio Klean is effective in improving outflow parameters encountered in operating wastewater treatment plants and has the positive impact on the operational and financial performance of the wastewater treatment facility.

