

SCD Probiotics

Case Study Summary – Mohali, India

Saving Energy in Wastewater Treatment Plant

Industry:	Private Industrial Company
Application:	SCD Probiotics Technology used to save energy in the aeration process of the wastewater treatment facility
Customer:	Philips Electronics India Limited
Where:	Mohali, India
When:	Since 2007
Products:	Customized solution using ProBio Balance™ Plus
SCD Distributor:	Ecosystem Technology, Chennai, India

Project Description

Because India is currently facing an 18% deficit in power generation, Indian industries are focused on finding ways to save energy in industrial processes and industrial waste management. Many wastewater treatment facilities use aerators to maintain wastewater quality parameters within regulation standards. The customer wanted to reduce energy in the aeration process in order to maintain or improve the quality of the wastewater treated and to increase the efficiency of the system. The reduction of foul odors and sludge production was also targeted.

The Philips wastewater treatment plant in Mohali is designed for a daily capacity of approximately 150 cubic meters/day. Daily inflows reach 150 cubic meters/day. The treated wastewater generated from the common facilities (serving 1,300 people) is then used for other purposes in the office complex, primarily gardening.

Table I: Indian Environmental Regulation Standards

Parameter	Unit	Outflow Standard
Chemical Oxygen Demand (COD)	mg/l	≤ 250
Biological Oxygen Demand (BOD)	mg/l	≤ 30
Total Suspended Solid (TSS)	mg/l	≤ 100
Oil & Grease (O&G)	mg/l	≤ 10
Chloride (Cl)	mg/l	≤ 250

Goals

- Reduce energy consumption in wastewater treatment plant by 50% after one year operation with SCD Probiotics.
- All outflow standards established by regulations must be met; further reduction of baseline outflow results are desired (see Table I).
- Reduce sludge production.
- Reduce odors once aeration is stopped.

Methodology

The system used is a Fluidized Aerobic Bed Bio Reactor (FAB) where air is diffused from the bottom through diffusers/nozzles by two lobe air blowers. The secondary product made from ProBio Balance™ Plus was introduced to the system beginning August 1st, 2007. It is added to the equalization tank that receives the water inflow from canteens, restaurants, toilets, and bathrooms.

Results

The goals of the project were achieved with significant improvements in energy savings and water quality.

- Energy consumption was reduced by up to 54% when compared to previous year (month to month comparisons - see Table II);
- Mean Wastewater Characteristics improved after the application of SCD Probiotics (see Table III);

In addition, the following benefits were realized:

- Sludge production was reduced.
- Odor from the wastewater treatment operation was eliminated.
- Maintenance of the wastewater treatment operation was easier and less expensive than in previous years.
- Setup and cost for the probiotic applications were minimal; all expenses associated with the project were within budget and a positive return on the investment was achieved.

Due to their success saving energy in the Mohali WWT plant, Philips Electronics India Limited has initiated the same program at two additional sites: Vadodara, Gujarat and Philips Innovation Campus (PIC) in Bangalore.

Table II: Energy consumption reduced up to 54%

Month	Water (KL)	Power (KWH)	KWH/KL	% Reduction
June,2006	605	3508	5.80	(compared with previous year)
July 2006	322	3169	9.84	
August2006	310	1567	5.05	
September 2006	721	3576	4.96	
October 2006	957	2904	3.03	
November 2006	1077	3315	3.08	
December 2006	660	3693	5.60	
January 2007	903	3404	3.77	
February 2007	388	2781	7.17	
March 2007	336	2792	8.31	
April 2007	717	2791	3.89	
May 2007	1249	3326	2.66	
June 2007	953	3076	3.23	
July 2007	336	1918	5.71	Start SCD 1/8/2007
August 2007	293	1741	5.94	17.55
September 2007	731	2221	3.04	-38.74
October 2007	815	1710	2.10	-30.86
November 2007	1045	1636	1.57	-49.14
December 2007	1465	3476	2.37	-57.60
January 2008	1710	3547	2.07	-44.97
February 2008	1117	2539	2.27	-68.29
March 2008	1159	2167	1.87	-77.50
April 2008	1008	1915	1.90	-51.19
May 2008	929	1948	2.10	-21.26
June 2008	568	1470	2.59	-19.82
July 2008	416	1415	3.40	-40.41
August 2008	353	953	2.70	-54.57

Table III: Mean Wastewater Characteristics (April-July 2007) Prior to SCD Probiotics Application and Mean Wastewater Characteristics (August 2008) after SCD Probiotics Application

Date of Lab Result	pH	TSS mg/l	COD mg/l	BOD mg/l	O&G mg/l	Chloride (Cl) mg/l
INFLOW						
	6-8	200-300	400	200	3.2	50
OUTFLOW						
18 April 2007	7.1	30	104	36	1.9	102
17 May 2007	7.6	23	46	15	1.7	31
13 June 2007	7.7	16	50	17	1.0	46
17 July 2007	6.9	16	43	15	1.0	34
Start SCD Probiotics						
06 August 2007	7.1	18	16	6	1.8	38
24 August 2007	6.7	18	43	16	1.2	38
24 September 2007	7.4	16	71	25	0.8	44
10 October 2007	7.2	36	158	56	2.2	31
2 November 2007	7.7	23	30	10	1.2	42
27 November 2007	7.9	28	31	12	2.0	35
1 January 2008	7.6	28	54	19	1.8	79
28 January 2008	7.8	32	58	21	1.6	42
11 February 2008	7.5	36	60	22	1.8	34
8 March 2008	7.7	40	49	18	2.2	40
14 April 2008	7.3	42	48	17	1.8	30
9 May 2008	7.7	48	48	15	2.2	34
23 June 2008	7.0	42	25	11	1.8	38
23 July 2008	6.8	32	44	15	1.2	134
25 August 2008	6.8	28	16	5	2.4	42

Contact customerservice@SCDProbiotics.com for additional information.

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