

Case Study 03 - Bioremediation of Oxidation Lagoons

SeptAct⁺ BXGE 0817 is a potent enzyme and pure culture based bespoke microbial consortium that has been developed for treatment of waste water flowing through Oxidation Lagoons in Mumbai to address the issues of BOD, COD and TSS in wastewater flowing through Oxidation Ponds, Piped drains and Septic tank sludge. Our microbial consortium has been developed after thorough screening of each of the species for its potency to breakdown the complex organic molecules present in the effluent at our state-of-the-art R&D and Manufacturing facility at Hosur, TN.

Case Study – Bio-remediation of Versova Oxidation Lagoons in Mumbai, using SeptAct⁺ BXGE 0404

Introduction:

Municipal Corporation of Greater Mumbai (MCGM) had invited e-tender for rehabilitation of Versova Wastewater Treatment Facility (WWTF) and treatment of sewage by Bioremediation technology. BioXgreen was awarded the contract on 10-11-2022. The main objective of the contract is to reduce the influent BOD, COD, TSS and pH to permissible standards stipulated by the regulatory authorities in the Phase-A period (Stabilization Period) and further maintain the performance targets of the treated effluent quality for the Phase-B (Post Stabilization Period). The total duration of the contract is 2 years that includes Phase-A and Phase-B period.

The Versova wastewater treatment facility (WWTF) is based on Oxidation Pond technology having 2 streams of the lagoon with 3 numbers of ponds in each stream and it is designed to treat average of 90-100 MLD of wastewater. However, due to construction of new STP the entire sewage from stream-1 is diverted to the stream-2 leading to high Organic loading and reduced Hydraulic Residence time (HRT) for bioremediation

Problem Statement:

The waste water flowing through this oxidation Ponds were polluting Malad Creek and National Green Tribunal had imposed penalty for pollution of Creek

Objective:

To achieve the New National Green Tribunal (NGT) discharge standards as defined in the tender post Bio-remediation:

SN	Parameter	Expected Output
1	BOD ₃ , 27 (Biochemical Oxygen Demand) of filtered sample (mg/L)	≤ 10 mg/l
2	COD (Chemical Oxygen Demand) of filtered sample (mg/L)	≤ 50 mg/l
3	TSS (Total Suspended Solids) (mg/L)	≤ 20 mg/l
4	PH	6.5-9.0

Results:

We have been successfully treating the Versova WWTF and have achieved the following average outlet parameters presented below:

SN	pH		BOD (mg/L)		COD (mg/L)		TSS (mg/L)	
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
1								
2	7.16	7.16	81	8	262	25	65	10

Mechanism:

- ❖ The Enzymes present in the formulation initiates the breakdown action of organics which is then utilized by the high potency microbial consortium
- ❖ Pollutants are taken up by microbes for their own metabolism by breaking it down in to simpler fractions and eventually mineralizing it into Carbon-di-Oxide and Water.
- ❖ This activity of microbes acts as a bio-filter in natural water bodies.

Limitation of Liability:

information is based on our current level of knowledge and cannot be considered exhaustive. The user, under its own responsibility, shall respect all the existing provisions on health and safety and shall verify every time the features and the specific and appropriate way to use the product. The users must satisfy themselves that there are no circumstances requiring additional information or precautions or the verification of details given herein

Advantages:

- Eco-friendly process.
- Action highly specific on target compound
- Less expensive than chemical treatment
- Complete degradation and clean up through mineralization of the target pollutant
- Does not transfer contaminants from one environment to another
- Uses a natural process
- Good public acceptance
- Process is simple

Performance

- Accelerated enzymatic degradation.
- Synergistic action allows the consortium to work faster and more effectively.
- Enhanced Aerobic performance

Count: 2 X 10⁷ CFU

Breakdown Pathway

Aerobic and Facultative Anaerobic

Dosage

0.5-5ppm

Packaging

Available in 25Kg packs

Storage/ Coverage

- Store in cool and dry place away from direct sunlight.
- Keep container closed when not in use.

Safety precautions

Use long sleeved clothing, rubber gloves and chemical safety goggles. Wash hands & face before eating, drinking or smoking after handling product

Note

On accidental ingestion, give victim water or milk to drink to dilute the product. Induce vomiting only if advised by physician