

Case Study 02 - Bioremediation of Piped Drain

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 Piped Drain 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 Piped drain in Mumbai, using SeptAct⁺ BXGE 0404

Introduction:

Municipal Corporation of Greater Mumbai (MCGM) had invited e-tender for rehabilitation of Malad Wastewater Treatment Facility (WWTF) and treatment of sewage by Bioremediation technology. BioXgreen was awarded the tender on 10-11-2022. The main objective of the contract is to reduce the influent BOD, COD, TSS and pH to permissible standards as 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. Malad WWTF is located at Marve Road, Mith Chawky, Mumbai area. This facility receives a flow of 170 - 300 MLD out of an installed capacity of 240 MLD. It has preliminary treatment by screening & diffused aerated grit chambers, followed by secondary treatment in the aerated lagoon system and then finally discharged in marine outfall. It is a piped drain carrying untreated domestic sewage from Sewage Pumping station to Malad WWTF.

Problem Statement:

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

Objective:

To treat the sewage at Malad WWTF and achieve the following discharge standards as defined in the contract 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 Malad piped drain and have attained 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 |
| 2 | 7.08 | 6.92 | 84 | 8.2 | 257 | 25 | 77 | 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:

The Information is based on our current level of knowledge & 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 & 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.