Seeing is Believing: A Case Study on BOC's Impact

Case Study by: Bio Catalyst Middle East

In our previous instalments, we explored the science behind Bio-Organic Catalyst (BOC) and how it enhances oxygen transfer and promotes aerobic conditions. This week, we present a real world case study showcasing the impact of BOC on H_2S reduction and overall water quality.

A local wastewater treatment plant faced significant challenges with high levels of H_2S, poor water clarity, and persistent Odors. Traditional aeration methods had proven insufficient to address these issues. The plant decided to implement BOC as part of a comprehensive strategy to improve water quality and reduce H_2S levels.

Implementation of BOC

Initial Assessment:

- **H_2S Levels:** Initial measurements showed H_2S levels exceeding 450 ppm.
- **Water Clarity:** The water was murky, with high levels of suspended solids and nutrients.
- **Odor Complaints:** The plant received numerous complaints from nearby residents about the foul Odors.

BOC Application:

- **Dosing Plan:** The plant began dosing BOC at 1 ppm of the biochemical oxygen demand (BOD) load, following an initial shock dosage of 2 ppm for two weeks.
- **Monitoring:** The plant closely monitored H_2S levels, water clarity, and other key parameters over a period of several months.

Results

H_2S Reduction:

- **Initial Reduction:** Within the first two weeks of BOC application, H_2S levels dropped dramatically to 307.6 ppm.
- **Long Term Impact:** After two months of continuous usage, H_2S levels stabilized at less than 50 ppm, representing an over 85% reduction.

Water Clarity and Nutrient Levels:

- **Improved Clarity:** The water clarity improved significantly, with a noticeable reduction in turbidity and suspended solids.
- **Nutrient Reduction:** Total Nitrogen (TN) levels decreased from 7.2 mg/L to below 1 mg/L, and Phosphate Phosphorus (PO4–P) levels dropped from 0.7 mg/L to below 0.1 mg/L.

Odor Control:

- **Community Feedback**: Residents reported a significant improvement in Odor conditions, with a marked reduction in foul smells.
- **Operational Benefits:** The plant experienced fewer complaints and improved community relations.

Key Findings:

- **Energy Savings:** The plant observed a 30% reduction in energy consumption due to the increased efficiency of oxygen transfer.
- **Reduced Maintenance:** The need for regular maintenance of aeration systems was reduced, lowering overall operational costs.
- **Environmental Benefits:** BOC's nontoxic and ecofriendly nature contributed to a healthier environment and improved community relations.

Conclusion

The implementation of Bio-Organic Catalyst at the Wastewater Treatment Facility demonstrated significant improvements in H_2S reduction, water clarity, and overall water quality. By enhancing oxygen transfer and promoting aerobic conditions, BOC provided a sustainable and effective solution to the challenges faced by the wastewater treatment plant. The results highlight the potential of BOC to transform water treatment processes and improve community health and wellbeing.