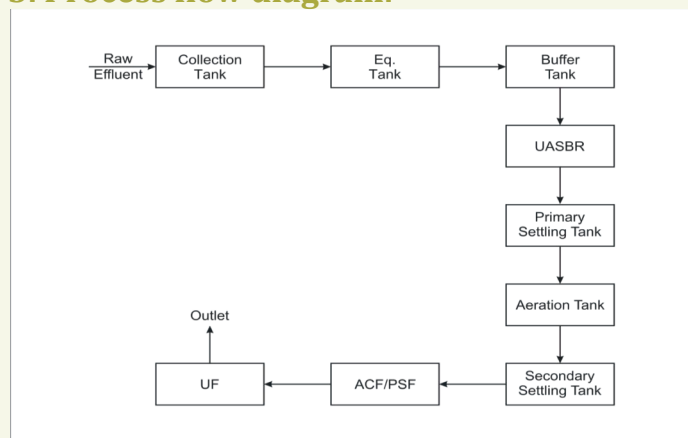


1. Background:

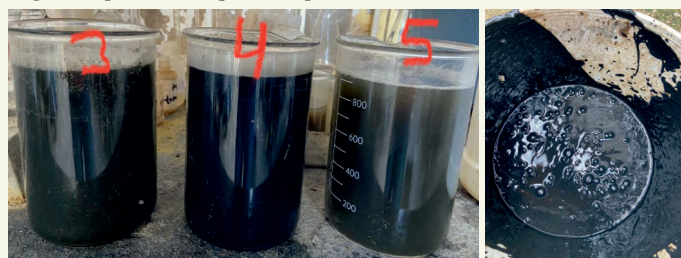
This company stands out as a leading manufacturer and exporter of ORAL CEPHALOSPORIN APIs, based in India. It boasts significant manufacturing capabilities, specializing in the production of various products such as Cefixime, Cefdinir, Cefaclor, Cefuroxime Axetil, Cefpodoxime Proxetil, Cefditoren Pivoxil, and Cefprozil. The manufacturing processes adhere to high-quality cGMP conditions to ensure product excellence. Specifically, a 30 KLD plant has been established for the purpose of treating the wastewater. This initiative reflects the company's commitment to sustainable practices and environmental responsibility in its manufacturing processes.

3. Process flow diagram:



5. Results: -

Following the successful commissioning of the anaerobic digester, a granular type sludge is generated. The colour of this sludge serves as an indicator of the digester's health, reflecting the overall well-being and functionality of the anaerobic digestion process. Below are the samples taken from the digester ports except from port 2.



a) COD Reduction: -

An impressive COD reduction of around 85-90% was accomplished from 7187 mg/litre to 874 mg/litre, following the successful commissioning of the anaerobic digester, specifically the Up flow Anaerobic Sludge Blanket Reactor (UASBR).

b) VFA/ Alkalinity ratio: -

Upon the successful commissioning of the plant, an optimal VFA/ALK ratio of 0.18 was achieved. The specific values for Volatile Fatty Acids (VFAs) and Alkalinity were measured at 514.5 mg/litre and 2821.5 mg/litre, respectively.

2. Challenges:

To address environmental concerns, the company has implemented an effective wastewater management system. The wastewater generated during the production of these chemicals undergoes treatment in an Effluent Treatment Plant (ETP). The treatment process involves both Anaerobic and Aerobic digestion methods, ensuring comprehensive and environmentally responsible treatment. The Chemical Oxygen Demand (COD) value at the inlet ranged from 7000 to 8000 mg/litre. The goal is to reduce this value within the range specified by government regulations, and this reduction is achieved through the Anaerobic Digester (specifically, the Up flow Anaerobic Sludge Blanket Reactor or UASBR).

4. Special Technical Solution:

To address this, we've implemented a specialized technical solution by providing our product "BactaServe- Anaerobic." This product features a consortium of bacterial bio-culture specifically designed to actively participate in COD reduction through essential processes such as Hydrolysis, Acidogenesis, Acetogenesis, and Methanogenesis. This strategic use of bacterial cultures enhances the efficiency of the Anaerobic Digester (UASBR) in reducing COD levels within the prescribed government-approved range.



Table- 1. Dosage Protocol:

Sr No	Day	Dosage Kg/Day
1	Day 1	5
2	Day 5	5
3	Day 10	5
4	Day 15	5
5	Day 20	5
6	Day 25	5
Total		30 Kgs

6.Executive Summary: -

- A product BactaServe- Anaerobic has a consortium of bacterial bio-culture which are responsible for COD reduction by converting it into an energy source called Biogas (CH₄).
- With the use of culture, we can stabilize the Anaerobic Digester (UASBR & EGSBR) in the COD reduction as well as in the biogas production.
- Up to 80-90% COD reduction can be achievable using the 'BactaServe- Anaerobic' across the anaerobic digester.