

Abstract

Simpler methods of wastewater treatment have been developed, particularly over the last few decades, capable of reducing the cost and complexities of treatment without sacrificing the requirements of pollution control. A Common Effluent Treatment Plant with aerobic treatment is one of the methods of the end of the pipe treatment.

The anaerobic process has several advantages over the other available methods of wastewater treatment. Most significantly it is able to accommodate relatively high rates of organic loading. With increasing use of anaerobic technology for treating various process streams, it is expected that industries would become more economically competitive because of their more judicious use of natural resources. Therefore, anaerobic digestion technology is almost certainly assured of increased usage in the future.

This partial work on given research thesis aims to address the concept of common treatment with their advantages and some information about an existing system at NEPL, Naroda.

It provides a description of the microbiological basis for anaerobic biodegradation and defines the environmental boundary conditions required to enable anaerobic treatment. A brief discussion of the pros and cons of leading anaerobic treatment are also provided. Some information about the list of organics which can be removed by this process is also provided in this project.

Anaerobic treatment processes are having the following advantages:

- Simple to build and operate.
- Low capital and operating cost.
- Low power required.
- High strength of the wastewater can be treated.
- Can withstand shock loads.
- Final waste can be used as fertilizer.
- Low amount of residue sludge byproduct.
- No need to treat the residue sludge.
- Production of methane rich gas.
- Can degrade refractory organic compound.
- Low nutrient requirements.
- No effluent recycle
- Can be managed with relatively low skilled persons.
- Complete stabilization of organic material to carbon dioxide and methane.

Disadvantages of anaerobic treatment processes are as listed below:

- Anaerobic reaction rates are slow.
- Optimum reactor temperature is 20 deg c and above.
- Additional treatment is required to meet discharge norms.
- Odor problem can be a serious problem.
- Chemical buffering may be required for maintaining the alkalinity in the reactor.
- Corrosion resistant materials are required.

Key Words : Anaerobic Waste Water Treatment, Anaerobic degradation, NEPL, CETP.