

Abstract

A Huge rise in the number of small-scale industries can be seen in any Indian city due to finance easily available from market and increasing demand of goods. It is generally observed that, either due to their economies of scale coupled with their unplanned growth and dearth of affordable and cost-effective treatment technology, efforts by small-scale units in achieving the environmental compliance have not been effective. Under these constraints, setting-up of individual full-fledged treatment device is no longer feasible. Hence the desirable option is of the shared or combined treatment, wherein, managerial and operational aspects are collectively addressed and the cost of treatment becomes affordable as enunciated in the scheme of the Common Effluent Treatment Plants, which are proving to be a boon, especially for all industries.

Common Effluent Treatment Plant (CETP) not only helps the industries in easier control of pollution, but also acts as a step towards cleaner environment and service to the society at large. Small scale industries, by the very nature of their job cannot benefit much from economies of scale and therefore the burden of installing pollution-control equipment falls heavy on them.

The concerted approach of joint of common effluent treatment provisions has many advantages. Wastewater of individual industries often contain significant concentration of pollutants; and to reduce them by individual treatment up to the desired concentration, becomes techno-economically difficult. The combined treatment provides a better and economical option because of the equalization and neutralization taking place in the CETP. Other important issues for the merit of common treatment includes, scarcity of land at the industry's level and a comparatively easier availability of professional and trained staff

for the operation of CETP, which can otherwise be difficult, at the individual industry level.

Modeling and Simulation of wastewater treatment plant is useful for the prediction of output variable according to change in input variable. If the load of BOD, COD and TDS increases on the waster

water treatment plant, then from the modeling and simulation of the process one can predict how the efficiency of the process gets affected. If the load of phenol increases on the process, then we can predict how

the efficiency of the plant gets the affected. The project includes the following features:

- Concept of CETP, design criteria, advantages and disadvantages of CETP, general description of CETP.
- Need of CETP, activated sludge fundamental, aeration tank, factors affecting the kinetics of aeration, advantages of modeling and simulation of activated sludge process.
- Description of CETP at Naroda, case study of CETP at Naroda.
- Mathematical model of activated sludge process.
- Experimental set-up of aeration tank.
- Results and discussion of experiments and the simulation of aeration tank exiting at Naroda.

The concept of common treatment, based on feasibility, should be part of the new industrial estates as essential component of infrastructure. In fact, the location of industries should always be such that units with compatible nature of activity are located in a cluster that in turn can facilitate in providing common treatment.

Key Words : CETP(Common Effluent Treatment Plant), Waste Water Treatment.