

Abstract

Biological treatment technologies have been utilized in wastewater reclamation for over a century. Out of the many different processes employed, the activated sludge system has proven to be the most popular.

During the past 15 years, significant new developments and changes have occurred in the field of wastewater engineering, especially with respect to:

- The characterization of the constituents of wastewater, both in terms of the range of constituents and the detection limits;
- A greater fundamental understanding of the mechanisms of biological wastewater treatment;
- The application of advanced treatment methods for the removal of specific constituents;
- The increased emphasis on the management of the biosolids resulting from the wastewater treatment;
- The issuance of more stringent requirements for the discharge and reuse of treated wastewater.

The applications of membranes within the treatment sequence of water pollution control facility were initially limited to tertiary treatment and polishing. Ultra-filtration, micro-filtration, or reverse osmosis units were utilized in areas where discharge requirements were very stringent or direct reuse of the effluent was desired. High capital and operational costs as well as inadequate knowledge on membrane application in waste treatment were predominant factors in limiting the domain of this technology. However, with the emergence of less expensive and more effective membrane modules and the implementation of ever-tightening water discharge standards, membrane systems regained interest. Membrane modules have evolved from being utilized solely in tertiary wastewater treatment to being integrated into secondary wastewater treatment.

Key Words : Waste water treatment, Cartridge filter Bioreactor, Membrane Bio reactors (MBR).