

Industrial wastewater treatment covers the mechanisms and processes used to **treat waters** that have been contaminated in some way by **anthropogenic** industrial or commercial activities prior to its release into the environment or its re-use.

Most industries produce some wet waste although recent trends in the developed world have been to minimise such production or recycle such waste within the production process. However, many industries remain dependent on processes that produce **wastewaters**.

Wastewater Treatment Methods & Disposal

Satisfactory disposal of wastewater, whether by surface, subsurface methods or dilution, is dependent on its treatment prior to disposal. Adequate treatment is necessary to prevent contamination of receiving waters to a degree which might interfere with their best or intended use, whether it be for water supply, recreation, or any other required purpose.

Wastewater treatment consists of applying known technology to improve or upgrade the quality of a wastewater. Usually wastewater treatment will involve collecting the wastewater in a central, segregated location (the Wastewater Treatment Plant) and subjecting the wastewater to various treatment processes. Most often, since large volumes of wastewater are involved, treatment processes are carried out on continuously flowing wastewaters (continuous flow or "open" systems) rather than as "batch" or a series of periodic treatment processes in which treatment is carried out on parcels or "batches" of wastewaters. While most wastewater treatment processes are continuous flow, certain operations, such as vacuum filtration, involving as it does, storage of sludge, the addition of chemicals, filtration and removal or disposal of the treated sludge, are routinely handled as periodic batch operations.

Wastewater treatment, however, can also be organized or categorized by the nature of the treatment process operation being used; for example, physical, chemical or biological. Examples of these treatment steps are shown below. A complete treatment system may consist of the application of a number of physical, chemical and biological processes to the wastewater.

Some Physical, Chemical and Biological Wastewater Treatment Methods

Physical

Sedimentation (Clarification)

Screening

Aeration

Filtration

Flotation and Skimming

Degassification

Equalization

Chemical

Chlorination

Ozonation

Neutralization

Coagulation

Adsorption

Ion Exchange

Biological

Aerobic

Activated Sludge Treatment Methods

Trickling Filtration

Oxidation Ponds

Lagoons

Aerobic Digestion

Anaerobic

Anaerobic Digestion

Septic Tanks

Lagoons

Evaporation