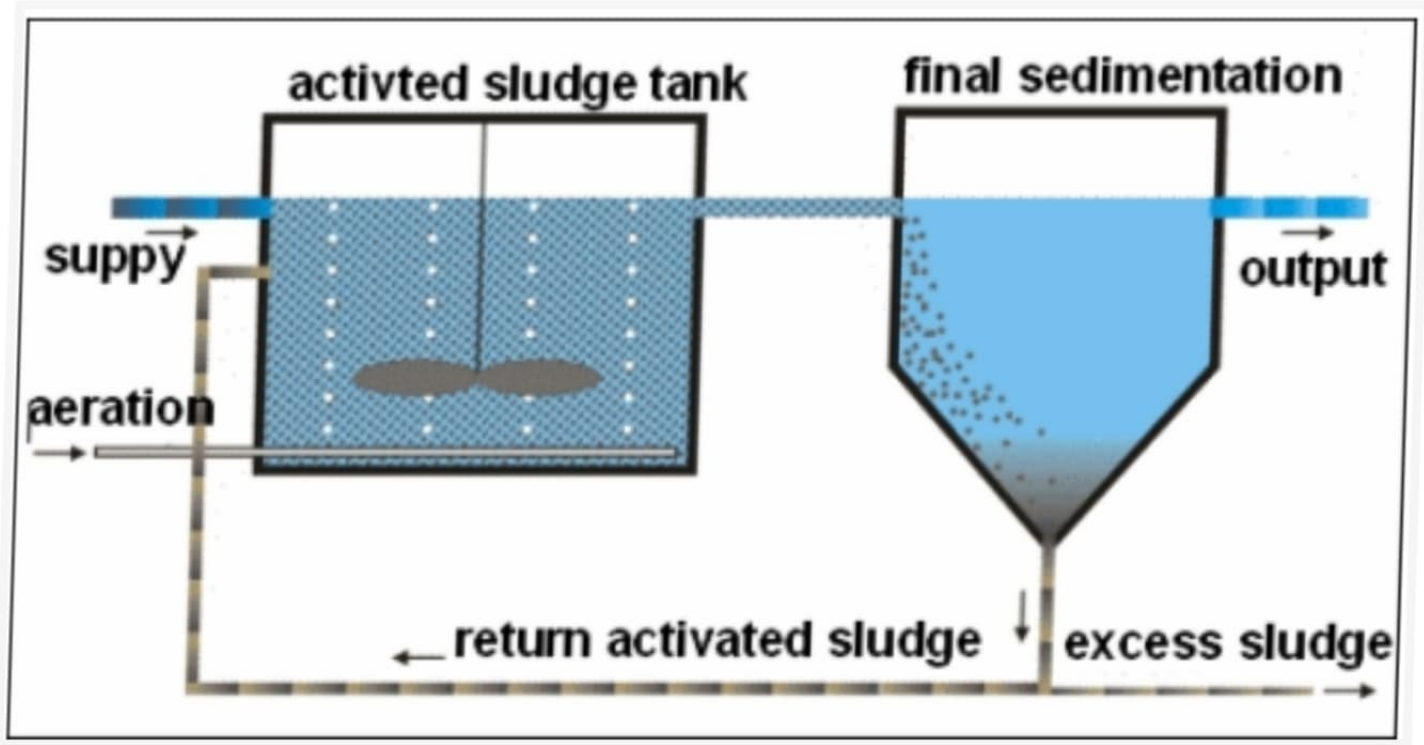
The activated sludge process uses microorganisms to feed on organic contaminants in wastewater, producing a purified effluent. The basic principle behind all activated sludge processes is that as microorganisms grow within metabolizing soluted organic material. They form particles that clump together. These particles (flocks) in most cases are able to settle, so that they can separated with a simple settling process, which works according to the same principle as the pre-settling. Wastewater supply is mixed with return of activates sludge containing a high proportion of organisms taken from the final sedimentation. This mixture is stirred and injected with large quantities of air, to provide the oxygen demand of microorganisms and keep solids in suspension. After a period of time, mixed liquor flows to a clarifier, which is in most cases a settling tank. In special cases also a flotation tank or membranes can be used to separate microorganisms. Partially cleaned water flows on for further treatment if needed. The resulting settled solids, the activated sludge, are returned to the first tank to begin the process again. Due to the fact, that during the process microorganisms grow, the excess sludge has to be removed out of the system to held the microorganisms concentration nearly constant.


activted sludge tank
final sedimentation
suppy
output
aeration
return activated sludge
excess sludge