

FLOCCULATION / COAGULATION

Flocculation is widely used in the treatment of water, industrial wastewater and municipal effluents to remove suspended solids quickly. It serves as a means of assisting in the removal of colloidal particles (suspended solids) by causing them to form larger aggregates through the addition of chemical reagents (flocculants). The flocculants that are widely used are metal hydroxides of iron, aluminum, various polymers and poly-electrolytes.

The dominant mechanisms involved in flocculation are:

- Charge neutralization through the use of a flocculant which has a charge opposite to that of the particles.
- The physical capture of particles within hydroxide flocs formed from the hydrolysis of metal salts such as aluminum sulfate or ferric chloride.
- Bridging between particles by polymeric molecules which can attract & bind particles to individual sites on the polymer chain.

Through flocculation, particles which may originally be much less than a micron in size can be made to form aggregates that are over a millimeter in diameter. Such aggregates will settle much more rapidly than the individual components.

