Coagulation – Flocculation

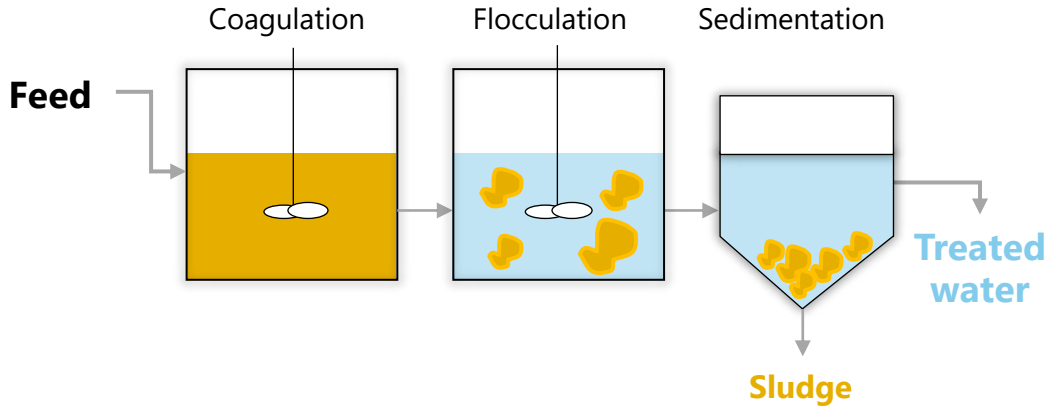
Process Description

Coagulation – Flocculation is a physicochemical treatment process used to remove suspended solids, colloidal particles, oil, iron, and other contaminants from water.

During treatment, coagulants such as ferric chloride, ferric sulfate, or aluminum sulfate (alum) are added to destabilize suspended and dissolved species and promote the formation of insoluble precipitates. Flocculants may then be added to aggregate fine particles into larger, settleable flocs. The flocs are subsequently separated by sedimentation, where gravity allows the solids to settle and form a sludge that is removed from the system.

Coagulation–flocculation followed by sedimentation is typically applied as a pretreatment step to reduce turbidity, metals, and fouling constituents, improving the performance and reliability of downstream treatment processes.

Process Schematic



Publications

- Evaluation of pretreatment and membrane configuration for pressure-retarded osmosis application to produced water from the petroleum industry (Link)
- Osmotically assisted reverse osmosis: assessing pretreatment on hypersaline produced water (Link)

For further information, please contact us at email: GWSC@conocophillips.com