Dissolved Gas Flotation (DGF)

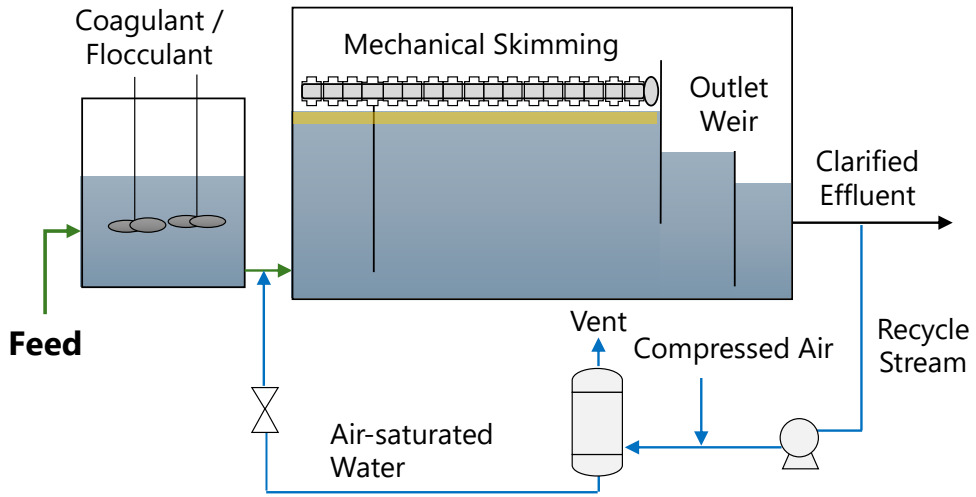
Process Description

DFG is a physical flotation-based separation process designed to remove oil, suspended solids, and particulate iron from wastewater, particularly in oil and gas operations.

In DGF systems, a portion of the treated effluent is recycled, pressurized, and saturated with air or gas before being released into the incoming feed stream. The resulting microbubbles attach to oil droplets and suspended particles, reducing their apparent density and promoting flotation to the water surface. The accumulated float layer is then removed by mechanical skimming.

DGF systems are often operated in conjunction with coagulants and/or flocculants, which promote particle agglomeration and improve bubble-particle attachment. When properly designed and operated, DGF can achieve high removals of oil and grease and total suspended solids, producing an effluent suitable for discharge or further downstream treatment.

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