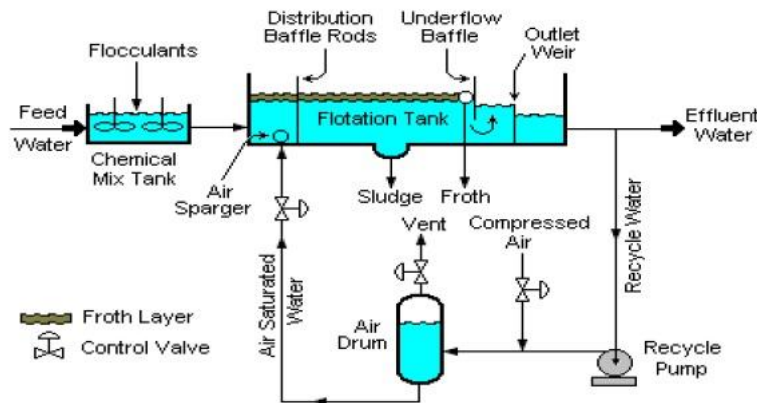


Dissolved Air Flotation (DAF) technology is the process where suspended solids, oils & greases, and other impurities are separated from water slurries by a process of dissolving air into water. Micro-bubbles interact with the particles to cause them to float to the surface of a vessel where they are skimmed and separated. DAF system can achieve removal efficiencies and effluent qualities far superior to traditional DAF systems.



DAF units usually remove oil down to 20 ppm or less, and the released air may have to be treated in a control unit.

DAF units are generally sized with an overflow rate of 1500 to 3000 gal./day/sq.ft. and a retention time of 30 to 40 minutes.

A variant of the DAF unit that is commonly used in oil fields and for ballast water treatment is the Induced Air Flotation (IAF) unit. In the past it was rarely used in chemical plants and refineries but interest in it is increasing because the unit is totally enclosed and can use recycled gases for floatation. The unit utilizes polymer feed and usually has four eggbeater type frothing units for floatation. The unit has high power consumption, but uses much less space than a DAF unit. It is efficient as or more efficient than a DAF unit depending on oil and emulsion characteristics.

Attachment of gas bubbles to suspended-solids/gas mixture is carried to the vessel surface after precipitation of air on the particle, collision of a rising bubble with a suspended particle, trapping of gas bubbles as they rise under a floc particle and adsorption of the gas by a floc formed or precipitated around the air bubble.

To dissolve air for flotation, three types of pressurized systems are used. Full-flow or total pressurization is used when the wastewater contains large amounts of oily material. The intense mixing occurring in the pressurization system does not affect the treatment results. Partial-flow pressurization is used where moderate to low concentrations of oily material is present. Again, intense mixing by passage through the pressurization systems does not affect treatment efficiency significantly. The recycle-flow pressurization system is for treatment of solids or oily materials that would degrade by the intense mixing in the other pressurization systems. This approach is used following chemical treatment of oil emulsions, or for clarification and thickening of flocculent suspensions.



APPLICATION FIELDS

- * Waste water utilities
- * Food industry
- * Petrochemical industry
- * Chemical industry
- * Heavy industry
- * Seawater desalination
- * Paper industry
- * and many other sectors

