



TECHNOLOGY FACT SHEET

Dissolved air flotation unit

A flotation system is mainly used as an additional separation step, to remove suspended solids, oil, fats and grease and other apolar substances from liquid fraction (Gruwez 2012).

It is a gravity separation process based on the attachment of air or gasses bubbles to solid particles, which are then carried to the liquid surface where they form a crust, which can be scraped off (Lebuf et al. 2013).

Depending on the way the gas bubbles are generated, flotation is divided into dispersed air, dissolved air and electrolytic air.

The Dissolved Air Flotation (DAF) is the most widespread flotation system. By decompressing compressed air, very small air bubbles are created, which are released on the bottom of the tank.

In order to improve the separation efficiency, coagulating and/or flocculating agents can be added to input stream. Complexing agents like FeCl_3 , $\text{Fe}_2(\text{SO}_4)_3$, organic coagulants, etc. are used to coagulate the solid particles, fats and grease. Polymer is added to flocculate the created complexes which can be removed at the surface.

Treatment capacity ranges from $0.1\text{m}^3/\text{h}$ to more than $1000\text{m}^3/\text{h}$.

Read more about the separation efficiencies, use of additives, energy requirements and costs in Chapter 2.2.1.4 of D 3.2 [Final report on schemes and scenario's for nutrient recovery and Reuse](#).

www.systemicproject.eu/downloads → "project deliverables"



Scheme of a Dissolved air flotation (DAF), source: adapted from Nijhuis Industries.



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References

- Gruwez, Jan. 2012. *Wegwijs in de Industriële Afvalwaterzuivering*. edited by H. Suijkerbuijk. Wolters Kluwer Belgium.
- Lebuf, V., F. Accoe, S. Van Elsacker, C. Vaneekhaute, E. Michels, E. Meers, G. Ghekiere, and B. Ryckaert. 2013. "Inventory:Techniques for Nutrient Recovery from Digestate."