



Case Study

Installation of a DAF clarifier as part of a FBR process for treatment of wastewater from the meat industry

Year 2019

Project location Facility of Cárnicas Medina in Valencia.

Objectives • Installation of a secondary clarification system of the existing biological treatment, forming a FBR process to comply with the discharge limits.

Installed technologies in-line coagulation-flocculation system SIGMA PFL-180; clarification via dissolved air flotation SIGMA DAF FPAC160/200.

Capacity 200 m³/day

Wastewater characteristics for process design	
TSS	Oil and fat
4500 mg/L	500 mg/L

Clarification efficiency	
TSS removal	Oil and fat removal
90%	90%

Installation of a DAF clarifier as part of a FBR process for treatment of wastewater from the meat industry

Background

Cárnicas Medina is a leading company in the meat sector. Its facilities in Valencia have a wastewater treatment plant through biological treatment and require the installation of secondary clarification forming a FBR process.

The **FBR process ('flotation bio-reactor')** consists of an existing biological reactor in the plant where the elimination of organic matter is carried out, in it microbial flocs are generated by adsorption and agglomeration. These biomass flocs are separated by a combined coagulation-flocculation process followed by clarification.

Coagulation-flocculation is carried out in a SIGMA PFL-180 equipment in which coagulant is incorporated to group the generated biomass and flocculant (polyelectrolyte) to agglomerate these biomass aggregates into larger flocs.

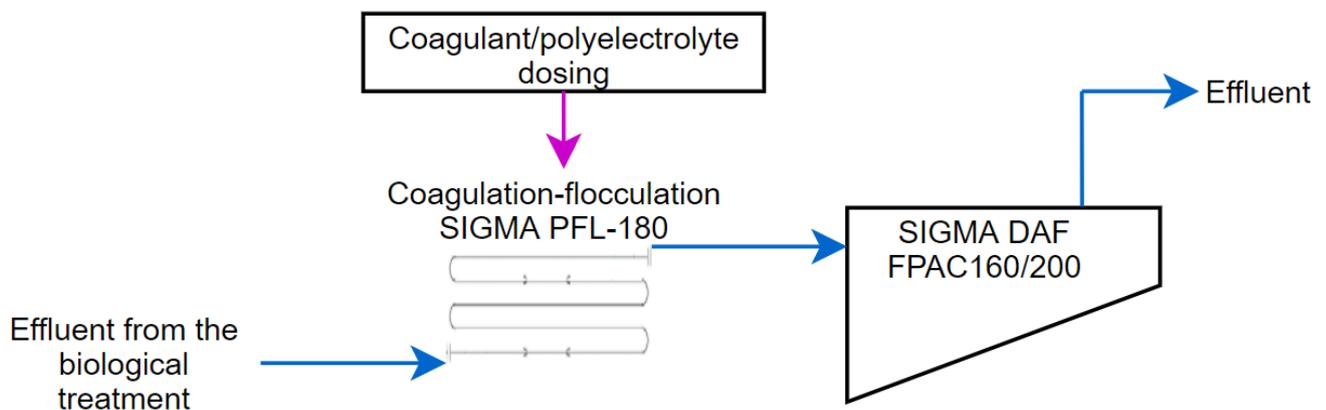
The clarification with dissolved air flotation DAF

allows the separation of the flocs formed, by means of air micro-bubbles dissolved in a SIGMA DAF FPAC160/200 equipment.

DAF systems are introduced to separate oils, greases, fats, solids and flocs that do not have enough buoyancy to float, or when a mixture of emulsified fats, oils and solids affect the specific gravity in such a way that the flotation air is necessary to improve the separation, they are also applied in FBR processes for the separation of biomass flocs. The size of the air bubbles is between 30 and 50 microns, which is key for the flotation system as the micro bubbles easily adhere to particles of the same size or greater.

SIGMA DAF flotation clarification equipment are special equipment highly reliable and robust, as well as flexible, allowing it to be adapted to possible fluctuations in wastewater emissions and plant operation.

Process diagram



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