



Case Study

Biological wastewater treatment FBR in the food processing industry

Year 2010

Project location facilities of Tostaderos Sol de Alba S.A.

Objectives • Installation of a biological treatment FBR and clarification after the existing pre-treatment to comply with the discharge limits.

Installed technology aeration tank for biological treatment; aeration-recirculation system MTJET for the biological reactor; clarification system SIGMA DAF FPAC-PWL-35; nutrients and polyelectrolyte dosing equipment ; control and automation systems.

Capacity 430 m³/day

Characteristics of the pre-treated wastewater		
DQO	DBO5	Total Nitrogen
4000 mg/L	1000 mg/L	60 mg/L

Efficiency of the biological treatment FBR		
COD removal	BOD5 removal	Total Nitrogen removal
> 60%	> 88%	> 56%

Background

At the facilities of Tostaderos Sol de Alba S.A. where the production of fried corn is carried out, there is a pre-treatment of the wastewater that is insufficient to meet the discharge requirements. A biological treatment with a FBR process is designed and installed to further treat the wastewater up to discharge limits.

SIGMA designs and installs a FBR process ('flotation bio-reactor') consisting of an aeration reactor where biological treatment is carried out (this biological process consists of the transformation of the organic matter contained in the wastewater into microbial flocs by adsorption and agglomeration) and a separation of the biomass by flocculation and secondary clarification by DAF flotation (in this process biomass flocs are formed that will be separated by flotation with air micro-bubbles in a DAF FPAC-PWL-35 equipment. With these special equipment, sludge with a dry solids content 3 or 4 times higher than any conventional system is achieved)

The SIGMA DAF FPAC-PWL flotation equipment is a cross flow separator designed to treat wastewater with a high solids load.

In the SIGMA DAF flotation equipment, perfectly clarified water is obtained that can be discharged in compliance with the discharge requirements and a sludge that will be partly recirculated to the biological reactor to maintain a stable biomass concentration and partly extracted as a purge. The addition of polyelectrolyte to the clarification system allows the generation of easily separable biomass flocs in addition to providing a high concentration of biomass inside the reactor and therefore a higher performance than in other biological systems of suspended biomass.

The SIGMA DAF FPAC-PWL flotation system is a modular system that is easy to expand and has a high capacity to adapt to different biomass concentrations.

Process diagram

