

Granador Juice, Switzerland

A Case Study

Case Study: Food & Beverage Industry

Client: Granador AG Switzerland

Start Up: July 2004

Capacity: 500 m³/d



Overview

Granador, a premium brand of Unidrink AG, is a well known beverage producer, located in Hitzkirch, Switzerland. Granador produces about 45 million bottles per year for distribution all over Europe. The plant had an anaerobic reactor for wastewater treatment, but effluent quality did not meet the requirements for discharge to the sewer system.

Requirement

Wastewater quantity and composition varies widely according to the type of products being processed in the plant. In order to generally meet effluent quality requirements, it was found that 27% of the COD load in the anaerobic reactor should be removed.

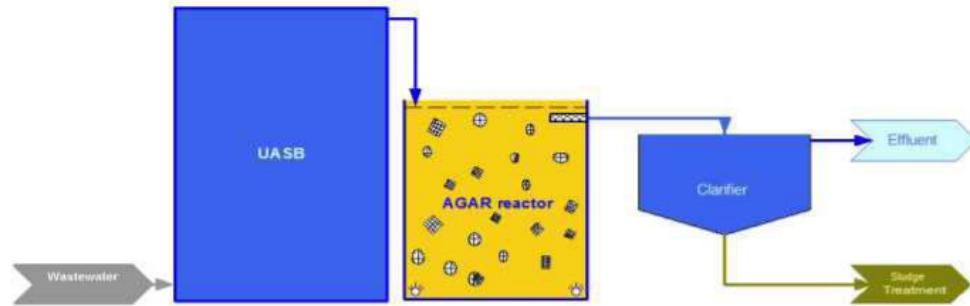
Challenge

In the face of wide annual variations, the solution must comply with the requirements, without operational complexity. A simple, reliable, low maintenance solution was required.

Solution

The AGAR Roughing-Filter is an ideal application for handling the organic load in food industry wastewater. Effluent quality requirements are met in Granador since July 2004, after the installation of a single-stage biomass carrier reactor, with a short retention time of only 1.3 hours.

Design



Wastewater with a typical COD concentration of 1,000 mg/l flow to an anaerobic reactor, where about 70% of the COD is removed. The anaerobic reactor effluent passes through a single stage AGAR Reactor for aerobic polishing. The AGAR reactor is filled to 54% with biomass carriers and operates as a Roughing Filter, in which attached growth of bio-film on carriers is responsible for the removal of BOD, with no circulation of activated sludge. The biomass carriers are mixed in the tank by unique airlift hydraulics, using the process air supplied through specially coarse bubble diffusers. Wedge wire screens are installed at the outlet of the AGAR reactor, in order to maintain the carriers inside the reactor. The screens are continuously kept clean the flow of a mixture of water, air bubbles and biomass carriers over them.

Results

Despite the seasonal variation in wastewater composition (according to the type of product) the plant usually achieves higher removal efficiencies than required. The plant has been operating trouble free since start up.