

WASTE WATER TREATMENT IN A COMPANY OF FRUIT JUICE PRODUCTION USING A MEMBRANE BIOREACTOR (MBR) (ALICANTE)

Key words: industrial waste water treatment, juice production, membrane bioreactor MBR, high strength effluent, high variability effluent



A company dedicated to concentrated fruit juice production generates waste waters with the typical characteristics of this type of effluent: high variability in terms of flow and physical-chemical parameters depending of the type of fruits being used in the production processes, high values of COD and BOD5 and an unbalanced nutrient ratio.

The company had a physical-chemical wastewater treatment but, such technology could not provide the efficiency needed to reach the quality required for the discharge of the treated water into public waters.

Thus, the company was looking for a technical solution that could cope with the great variability present in the untreated waste waters and adapt the biological processes very quickly in front of the changing conditions and nature of the organic matter present in the untreated effluent and guarantee a high quality of the treated effluent to allow its discharge into public waters.

Considering such background, the company decided to implement a membrane bioreactor, as such system can provide a high treatment capacity with an excellent treated water quality and fast adaptability of the biomass to changing conditions of the waste waters.

The MBR finally implemented has a treatment capacity of 360 m³/day. The technology used for the ultrafiltration unit consists in a prefabricated ultrafiltration unit MBRable® Train that allows for a fast and easy integration of the ultrafiltration system with the reactor, involving an easy and simple maintenance and operation due to the high degree of automatization included. The train operates 3 MBRable® Cassettes of 2 layers of membrane modules each. Each cassette has 864 m² of membranes and can be expanded up to 1008 m² by addition of more modules and further expansion can be made by addition a third layer of membrane modules. After the start-up of the plant, an excellent final effluent quality was achieved satisfying by far the requirements for its discharge into public waters.



Year 2018

Sector: Fruit juice

Flow: 360 m³/d

BOD5 effluent: <25 mg/l

