

# TREATMENT OF WASTEWATERS CONTAINING FUNGICIDES FROM A CITRUS PROCESSING COMPANY (VALENCIA)

(keywords: processing of fruits and vegetables, bioreactor membrane MBR, pesticides, removal of imazalil)



Greenmed is a citrus processing store located in Xeraco (Valencia). Citrus plants generate waste waters with a moderate organic load and moderate concentrations of suspended solids but polluted with fungicides and other post-harvest chemicals (imazalil, thiabendazole...) which are applied on the fruits to prevent spoilage of fruits during storage and distribution.

These contaminants are not removed by conventional biological treatment and a biological treatment able to adapt to their presence, avoid possible effects of inhibition and maintain significant populations of microorganisms is required to biologically degrade this type of compounds, as well as reduce the organic load in the treated water almost completely to allow a tertiary treatment by oxidation of small concentrations of fungicides remaining after the biological treatment.

en particular por la tecnología MBRable®, que gracias a su pequeño tamaño de poro facilita la adaptación deseada proporcionando un efluente con unos bajísimos niveles de DBO. El MBR fue dotado con 2 Cassettes MBRable® con 360 m2 de membrana cada uno (total 720 m2 ampliable sin obra hasta 1008 m2). Tras el MBR, la planta cuenta con un terciario mediante proceso Fenton que elimina eficazmente la presencia de pesticidas en el permeado.

Thus, the company selected the MBR technology for its robustness and ability to generate a biomass adapted to these slowly biodegradable contaminants and in particular the MBRable® technology, which facilitates the desired adaptation due to its small pore size (0,02 microns) providing an effluent with very low BOD levels. The MBR was equipped with 2 cassette MBRable® with 360 m2 of membrane each (total surface area 720 m2 expandable up to 1008 m2). After the MBR, the plant has a tertiary following a Fenton process that effectively eliminates the presence of pesticides in the permeate.



Year 2016

Sector Citrus processing

Flow: 120 m<sup>3</sup>/d

BOD<sub>5</sub> influent: 1200 mg/l

BOD<sub>5</sub> effluent (mg/L) <25 mg/l

