Membrane bioreactors MBR to treat wastewaters polluted with con pharmaceuticals and personal care products (PPCPs)

Pharmaceuticals and personal care products (PPCPs) can be present in industrial wastewaters as a result of the production operations carried put in the pharmaceutical and cosmetic industry. This type of complex compounds is not efficiently eliminated in the conventional biological wastewater treatment plants due to their slow biodegradability. Recent advanced treatment processes allow for the degradation such pollutants in a reliable, efficient and cost-effective way.

The waste waters from the cosmetic and pharmaceutical industry are characterised with:

- Variability in composition and flow
- Low biodegradability
- Presence of surfactants and disinfectant agents.

The keys for a smart wastewater treatment are:

- Segregation of streams by chemical nature
- Neutralisation and pH control
- Homogenisation
- Biological treatment with high sludge age
- Adapted biomass
- Efficient retention of macromolecules
- Final oxidation of trace components.

Recent concern on the accumulation of micro pollutants as PPCPs in water bodies leads to the development of technologies that are able to eliminate such compounds in the waste water treatment plants.

MBR is a biological wastewater treatment where the separation of the microorganisms present in the treated water is carried out by means of an UF membrane. This feature provides several advantages in relation to the control of the process and the quality of the final effluent

MBR becomes of most interest for the treatment of this type of effluents as it allows to keep a highly concentrated biomass in the biological reactor along with a high sludge age and solids retention that facilitate the adaptation of the biomass to degrade slowly biodegradable compounds. This way, MBR provides a high efficiency in the degradation of complex organic pollutants such as the PPCPs

The use of an ultrafiltration membrane allows the retention of such pollutants in the bioreactor

The absence of solids, colloids and microorganisms in the permeate allows an efficient tertiary treatment, if needed, to completely eliminate trace compounds through advanced oxidation or RO

“We work continously to improve our UF membranes and systems to guarantee successful MBR plants, providing highg quality effluents, high and stable fluxes with low operation costss”

If you wish to know more about MBR and our UF systems for MBR applications send us your consultations at info@europembr.com

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