



Flat sheet or hollow fibre — comparison of full-scale membrane bio-reactor configurations

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ABSTRACT

Membrane bioreactors (MBRs) are widely used for wastewater treatment and reuse applications. Selection of a membrane configuration is a crucial step in the design process and has a high impact on further plant operations. Despite increasing experience with full-scale applications, practical knowledge concerning the impact of different membrane configurations on process performance and operational costs is still lacking. This paper provides full scale MBR performance data comparing the use of flat sheet and hollow fibre membranes and analyses the consequences on operation, performance and treatment efficiency. Hollow fibre configurations, comparing to the flat sheet, are designed for higher fluxes, operated at lower concentrations, cleaned more often and protected by stricter pre-treatment. Filterability of activated sludge from municipal MBRs is better than from industrial MBRs and does not depend on membrane configuration. The energy consumption depends more on the influent type than on the membrane configuration.

Keywords: Activated sludge filterability; Cleaning protocols; Flat sheet; Hollow fibre; Membrane bioreactors; Membrane configurations comparison

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