

A new and appropriate fibre sheet configuration for MBR technologies

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Received 15 September 2008; Accepted 11 April 2009

ABSTRACT

This paper deals with an innovative flat sheet membrane configuration developed by inge AG consisting of multitubular sheets arranged in parallel which can be easily backwashed. This new membrane combines the advantages of hollow fibres (backwashable) and flat sheet membranes (better control of the fluid distribution and module stackable) and should permit energy savings by reducing membrane aeration. Four vertically stacked modules were tested at pilot-scale at Anjou Recherche under typical biological operating conditions (MLSS = 11 g/L; SRT = 26 days). The first results are promising with regards to membrane performances though membrane irregularities led to some sludge deposit in some areas: modules were operated at a net flux up to 25 L h⁻¹ m⁻² with a SADm of 0.36 Nm³ h⁻¹ m⁻² when backwash was done. However, some sheet damages occurred during the trials. Further membrane and module developments were therefore performed to limit membrane irregularities and achieve better membrane strength.

Keywords: Membrane bioreactor; Membrane configuration; Fibre sheet membrane

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