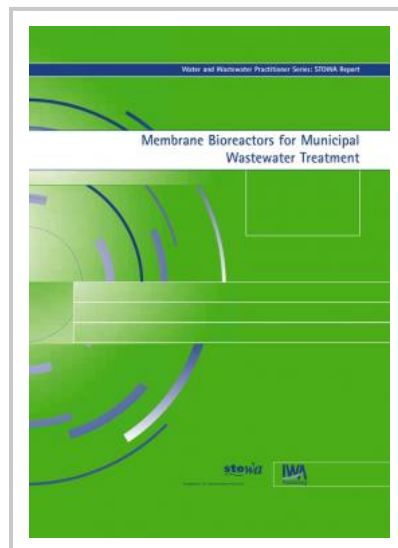


Membrane Bioreactors for Municipal Wastewater Treatment

Recent technical innovations and significant cost reductions have sharply increased the potential for using Membrane Bioreactor (MBR) technology in municipal wastewater treatment. MBR technology displays several advantages compared to the traditional activated sludge processes, such as high effluent quality, limited space requirement and with the possibility of a flexible and phased extension of existing waste water treatment plants.

Membrane Bioreactors for Municipal Wastewater Treatment describes the results of a comparative research programme involving four leading membrane suppliers: Kubota (Japan), Mitsubishi (Japan), X-Flow (Netherlands) and Zenon (Canada). Each supplier provided a pilot to represent a suitable scale - right up to full scale. These pilots were operated and optimised in the course of the research programme to achieve the best operating window under different operating regimes. The research focussed on the functionality of the membrane, the biological treatment, membrane fouling, achieved effluent quality, and system operability as well as other factors. In a number of side studies the required pre-treatment, membrane fouling/cleaning, energy usage, effluent quality and sludge processing were also addressed.

The comparative pilot research was carried out by DHV Water on location at the wastewater treatment plant at Beverwijk in the Netherlands.



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