

AlMalack, MH; Anderson, GK. 1997. Crossflow microfiltration with dynamic membranes. *WATER RESEARCH* 31 (8):1969-1979.

Abstract: The effect of dynamic membrane formation on the performance of crossflow microfiltration in treating domestic wastewater was investigated. The dynamic membrane was formed on top of a woven polyester primary membrane by circulating a precipitate of MnO_2 . The dynamic membrane formation was investigated at different conditions of pH values and $KMnO_4$ concentrations. Secondary effluent from a domestic wastewater treatment plant was used throughout the study. The MnO_2 dynamic membrane was found to improve the performance of crossflow microfiltration by producing higher flux values, extending the running time, and increasing rejection of solids. The optimum permeate flux values were obtained when the dynamic membrane was formed at a pH of 10 and using 100 mg/l of $KMnO_4$. At optimum conditions, the permeate turbidity was found to stabilize at values of less than 0.2 NTU. Cleaning the membrane was achieved easily and efficiently by brushing the outside surface of the primary membrane.