Desalination and Water Treatment
www.deswater.com

34 (2011) 163–166
October

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doi: 10/5004/dwt.2011.2900

Influence of suspension concentration and transmembrane pressure on microfiltration of montmorillonite based suspension

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Received 3 September 2010; Accepted 3 January 2011

ABSTRACT

The effects of various operating conditions including transmembrane pressure, suspension concentration and crossflow velocities for the microfiltration of micro-sized suspensions were experimentally investigated. The experiments were carried out with suspensions of bentonite particles with particle diameters of 0.5–100 μm using 0.1 μm tubular ceramic membranes. The step by step technique was used to determine the values of the critical flux and influence of the high frequency backflushing was analysed. It was found that the permeate flux is significantly depend on the suspension concentration and crossflow velocity. High permeate fluxes were obtained at low concentration 1 $g.l^{-1}$ and/or at high velocity 2.2 ms^{-1}.

Keywords: Microfiltration; Montmorillonite; Crossflow; Backflush; Bentonite; Critical flux

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Presented at the AMS6/IMSTEC10, The 6th conference of the Aseanian Membrane Society in conjunction with the 7th International Membrane Science and Technology Conference, Sydney Australia, November 22–26, 2010