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Factors affecting nanofiltration performances in natural organic matter rejection and flux decline

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Source: SEPARATION AND PURIFICATION TECHNOLOGY **Volume:** 58 **Issue:** 1 **Pages:** 68-75 **Published:** DEC 1 2007

Times Cited: 8 **References:** 15 [Citation Map](#)

Abstract: A crossflow bench-scale test cell was used to investigate factors (i.e. NOM concentration, ionic strength, and solution pH) affecting natural organic matter (NOM) rejection and flux decline during nanofiltration (NF). Experimental results revealed that increased NOM concentration increased permeate flux decline, salt rejection, and NOM rejection, enhancing NOM accumulation on membrane surface. At high concentration of NOM, permeate flux curve corresponded to cake formation model. Increased ionic strength from 0.004 M to 0.1 M illustrated higher flux decline, possibly as a result of increasing osmotic pressure from higher concentration of salt. Solutions possessing high ionic strength (0.05 M) showed greater flux decline and NOM rejection than those having low ionic strength (0.01 M). Increased solution pH from 4 to 10 exhibited greater flux decline, caused by increasing salt rejection and enhancing salt concentration on membrane surface. (c) 2007 Elsevier B.V. All rights reserved.

Document Type: Article

Language: English

Author Keywords: flux decline; fouling; nanofiltration; natural organic matter; permeate flux

KeyWords Plus: NOM; MICROFILTRATION; MEMBRANES; PRESSURE; NF

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[Mattaraj S, Phimpha W, Hongthong P, et al. Effect of operating conditions and solution chemistry on model parameters in crossflow reverse osmosis of natural organic matter DESALINATION 253 1-3 38-45 APR 2010](#)

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Publisher: ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

Subject Category: Engineering, Chemical

IDS Number: 234SG

ISSN: 1383-5866

DOI: 10.1016/j.seppur.2007.07.010

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