Desalination and Water Treatment
www.deswater.com

27 (2011) 189–196
March

1944-3994/1944-3986
doi: 10/5004/dwt.2011.1138

Modification of the extended Spiegler–Kedem model for simulation of multiple solute systems in nanofiltration process

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Received 17 January 2009; Accepted 18 August 2010

ABSTRACT

In the present work the extended Spiegler–Kedem model has been modified to predict the performance of the multiple solutes systems of nanofiltration with high concentration solutes using osmotic coefficient for calculation of osmotic pressure on the membrane surface in non-ideal solutions. Furthermore, a new method has been proposed for solving the model by simulating the multiple solutes nanofiltration systems using genetic algorithm (GA). The new method is independent of the number of solutes and data points and it is capable to predict the performance of multiple solutes systems with high precision.

Keywords: Extended Spiegler–Kedem; Multiple solutes system; Nanofiltration; Genetic algorithm (GA)

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