عنوان مقاله:

Effect of Cleaning Agent Concentration on Chemical Cleaning of Reverse Osmosis Membrane Fouled by Sugar Solution

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

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خلاصه مقاله:

Fouling is the most important problem associated with the application of membranes which restricts membrane performance. Membrane fouling is a complicated phenomenon and typically results from several reasons. A strategy for membrane regeneration is chemical cleaning of the fouled membranes. Cleaning efficiency varies with respect to the cleaning conditions, namely, the type and amount of cleaning agent, the pH of cleaning solution, cleaning time, cross flow velocity during cleaning, and the temperature of cleaning solution. Furthermore, cleaning efficiency, even at the same cleaning conditions, is also influenced by the fouling conditions. The concentration of cleaning agent has an important effect on cleaning efficiency. Using an optimum concentration which could provide the best cleaning together with lower chemical consumption is an industrial interest. In this work reverse osmosis membranes were fouled with sugar solution. The effect of different concentrations of cleaning agents including NH3, EDTA and SDS on the recovery of the fouled membrane has been studied. Membrane fouling is customarily indicated and measured by permeate decline at constant operating conditions. Resistance removal (RR) and flux recovery (FR) were used for demonstrating the cleaning efficiency. It has been shown that the cleaning efficiency changes with increasing the concentration of the cleaning agent with an optimum value.

کلمات کلیدی:

Membrane, Reverse osmosis, Sugar, Fouling, Cleaning