Modelling of RO membrane fouling with time

구보람, 양대륙*
고려대학교
(dryang@korea.ac.kr*)

Reverse osmosis (RO) has been widely used in many fields such as desalination process to produce drinkable water from seawater. Since fouled membranes significantly affect process performance as operating time increases in the RO processes, prediction of membrane fouling has been considered important. The membrane fouling occurs due to deposition of substances on/in the membrane and damage of the membrane itself. The fouling caused by the deposition is categorised according to different foulants that give the different effects on the membrane resistance and the permeate flux. Moreover, the membrane can be severely damaged by compaction of the membrane due to high pressure applied and degradation of the membrane structure. In this work, empirical models are developed for each cause of the membrane fouling, and then the effects on the membrane resistance and the permeate flux with time are investigated.