

A novel sulfonated poly(arylene ether ketone) reverse osmosis membrane: Effect of casting condition on separation characteristics

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ABSTRACT

A novel sulfonated poly(arylene ether ketone) (sPAEK) reverse osmosis (RO) membrane was prepared. This sPAEK is composed of a mechanically strong hydrophobic group and an anionic hydrophilic group wherein water is soluble. Since this poly(arylene ether ketone) showed a high chlorine resistance, it could be one of the candidate materials for a practical desalination RO. After this polymer was coated on a porous polysulfone support, a post-treatment was carried out to densify the morphology of the separating layer. It was investigated how the coating condition can affect the separation phenomena in terms of a water flux and a rejection of salts. As the weight% of sPAEK increased, the water flux decreased and the salt rejection increased. A post-treatment of the RO membrane significantly improved the separation characteristics.

Keywords: Reverse osmosis membrane; Poly(arylene ether ketone); Salt rejection; Water flux

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