Preparation of poly(aylene ether sulfone) / modified silica nanocomposite reverse osmosis membrane for seawater desalination

김상곤, 전정환, 전병희, 김성현*
고려대학교
(snoopgo@korea.ac.kr*)

We describe the synthesis of a membrane material consisting of a sulfonated poly (arylene ether sulfone) material containing amino groups (aPES). Furthermore, modified nanoparticles were synthesized to improve the effect of nanoparticles in the RO membrane. A nanocomposite TFC RO membrane containing aPES and hyper-branched polyamide grafted onto silica (HBP-g-silica) was prepared using the IP method. The synthesized materials and fabricated composite RO membranes were characterized by Fourier transform infrared (FT-IR) spectroscopy, thermal gravimetric analysis (TGA), and scanning electron microscopy (SEM). The chlorine resistance of the RO membrane was also evaluated. The separation performance of the RO membrane was measured with a 32,000-ppm sodium chloride (NaCl) solution.