

Nanocomposite RO membrane containing functional zeolite nanoparticles.

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In this paper, composite reverse osmosis (RO) membranes made from sulfonated poly (arylene ether sulfone) containing amino functional groups (aPES) and aminated zeolite nanoparticle (aTMA) were prepared. The performance of the aPES/aTMA membrane was evaluated; salt rejection and water flux were 98.8% and 37.8 L/m²h, respectively. Salt rejection decreased by only 12.7% and water flux increased by 2.5 L/m²h after the chlorination exposure test. aPES/aTMA membrane significantly modified the polyamide (PA) active layer network structures and contributed to the high performance because of high degree of cross-linking in the RO membranes active top layer. Therefore, aPES and aTMA, which helped improve water permeability, also protected the active top layer structure enhanced chlorine resistance of the RO membrane.