

## **Fabrication of Cellulose Acetate/Polyethylene Glycol Membranes Blended with Silica and Carbon Nanotube for Desalination Process**

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**Abstract :** Cellulose acetate/polyethylene glycol (CA/PEG) membrane was modified with varying amount of silica and carbon nanotube (CNT) to enhance its separation performance in the desalination process. These composite membranes were characterized for their hydrophilicity, morphology and permeation properties. The experiment results show that hydrophilicity of CA/PEG/Silica membranes increases with the increasing of silica concentration and the decreasing particle size of silica. From Scanning Electron Microscopy (SEM) image, it shows that pore structure of CA/PEG membranes increases with the addition of silica. Membrane performance analysis shows that permeate flux, salt rejection, and permeability of membranes increase with the increasing of silica concentrations. The effect of CNT on the hydrophylicity, morphology, and permeation properties was also discussed.

**Keywords :** carbon nanotube, cellulose acetate, desalination, membrane, PEG

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