

Preparation and Characterization of PVDF MF membranes containing fullerene nanoparticles

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Today, the technology of water treatment is very important as society and industry have grown bigger and bigger. Polymeric membranes have been used for more than 30 years largely for water treatment. Polyvinylidene fluoride (PVDF) is one of the most valuable materials. It has a lot of properties like high mechanical strength, thermal stability, chemical resistance, and, high hydrophobicity. However, when microfiltration (MF) membranes are made for PVDF, it could have low performance because of high hydrophobicity which makes low water flux and high fouling.

In this study, PVDF MF membranes were modified by dispersing nano-sized particle fullerene (C60) in a casting solution to improve the performance of normal PVDF MF membranes. Membranes were fabricated by a phase inversion method. The experiment investigated the effect of different C60 concentrations on membranes. The performance of PVDF MF membranes containing C60 was observed by several methods such as SEM, contact angle, porometer, etc, to indicate morphology, hydrophlicity, permeability, and transport properties.