عنوان مقاله:

Preparation of Polysulfone nano-structured membrane for removal metal ions from water

محل انتشار:

اولین کنفرانس بین المللی تصفیه فاضلاب و بازیافت آب، فناوری ها و یافته های نو (سال: 1388)

تعداد صفحات اصل مقاله: 7

نویسندگان:

A Akbari - *Nano Science Technology Center, University of Kashan, Kashan, Iran*

M Homayoonfal - *Nano Science Technology Center, University of Kashan, Kashan, Iran*

خلاصه مقاله:

Polysulfone nanofiltration (NF) membranes with higher pore size and higher charge density are capable of removing metal ions from water. Therefore the present study concerns the graft-modification of ultrafiltration (UF) membranes by UV irradiation. UF membranes were prepared via phase inversion method. Polyethylene glycol (PEG) with molecular weights 1500, 3000 and 4000 gr/mol was used in casting solution as comparatively big sized pore former. Effect of grafting conditions including monomer concentration and irradiation time on membrane performance properties as pure water flux (PWF) and salt rejection were studied. FTIR-ATR, SEM and AFM were employed to characterize the chemical and structural changes on the modified membrane surface. The result showed PWF significantly declines and salt rejection improves with increase in both graft irradiation time and monomer concentration. At 25 °C, PWF of this prepared NF membrane is 13.26 m3.m-2.h-1 at 300 kPa. The rejection to different salt solutions follows the decreasing order of Na2SO4 (96.3%), MgSO4 (58.8 %), NaCl (51 %) and CaCl2 (28.6%). The RMS roughness of this membrane is 1.65 nm which is NF membrane properties range

کلمات کلیدی:

Metal Ion, Nanofiltration Membrane, Polyethylene Glycol, Polysulfone, Uvgraft