

عنوان مقاله:

Oily Waste Water Treatment by Nano Titanium Dioxide Modified Polyethersulfone Membranes

محل انتشار:

پنجمین کنگره بین المللی نانو و فناوری نانو (ICNN2014) (سال: 1393)

تعداد صفحات اصل مقاله: 3

نویسندگان:

Vahid Moghimifar - Department of Chemical Engineering, Amirkabir University of Technology (Tehran Polytechnic),
Tehran, Iran

Ahmadreza Raisi - Department of Chemical Engineering, Amirkabir University of Technology (Tehran Polytechnic),
Tehran, Iran- Food Process Engineering and Biotechnology Research Centre, Amirkabir University of Technology
(Tehran Polytechnic)Theran, Iran

Abdolreza Aroujalian - Department of Chemical Engineering, Amirkabir University of Technology (Tehran
Polytechnic), Tehran, Iran- Food Process Engineering and Biotechnology Research Centre, Amirkabir University of
Technology (Tehran Polytechnic)Theran, Iran

خلاصه مقاله:

The aim of this study is to reduce the fouling of polyethersulfone (PES) ultrafiltration membranes which used in treatment of oily waste water. For this purpose, at first titanium dioxide (TiO₂) nanoparticles of quantum size in rutile crystal structure were prepared by hydrothermal method, then the PES membranes were fabricated via phase inversion technique and the membrane surface was modified by corona treatment, finally TiO₂ nanoparticles were deposited on the membrane surface by a dip coating technique. The synthesized nanoparticles were characterized by X-ray Powder Diffraction (XRD) and Scanning Electron Microscope (SEM) analysis. The fabricated membranes were used for treatment of a synthetic oily wastewater. It was observed that the surface treatment and modification of membrane by adding hydrophilic nanoparticles improved the permeation flux of oil/water mixture and reduced the flux decline and membrane fouling. Also, the experimental results indicated that the rejection of modified membranes was higher than the neat PES membrane.

کلمات کلیدی:

TiO₂ nanoparticles; Polyethersulfone (PES) ultrafiltration membrane; Surface modification; Fouling

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/397817>

