عنوان مقاله:

Optimization and recycling of wastewater in the cooling tower of Bidboland Gas Refining Company

محل انتشار:

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خلاصه مقاله:

Limited water resources, the risk of water crisis in the country and the importance of water recycling along with increasing pollution of surface and ground wateres by heavy metals and other pollutants from sewage, finding effective and economical environmental solutions to remove these materials from water resources creates a need. On the other hand, the high volume of water in the cooling towers, due to additional materials added to the cooling tower water, in addition to the staggering financial cost, it increases the volume of water consumption and due to the limited water resources in the country, Water access has become a major challenge; Therefore, we decided to carry out this project in order to recover and optimize the waste water of the cooling tower of Bidboland gas refinery. The main purpose ofthis study was to evaluate the performance of thin film nanocomposite membrane mixed with MCM-۴۱ and silica nanoparticles (Silica NPS). In this study, MCM-۴۱ was first synthesized and X-ray diffraction analysis, scanning electron microscopy (SEM) and transmission (TEM) and FT-IR were used to identify it. Then, by applying these filler NPS on the membrane we made and examining and comparing this membrane with other membranes, we were able to increase the permeability of water and the removal of impurities in it. The results show that MCM-۴۱ silica NPS, with adjustable mesoporous, are a good filler for creating PA TFN composite matrix membrane, with high performance. Optimizing conditions for Preparation of M-TFN membrane can lead to membranes with very significant water permeability and high impurity removal.

کلمات کلیدی:

waste water, Membrane, Scanning electron microscope.