عنوان مقاله:

Development a SVM based model of nanocomposite Polyacrylonitrileultrafiltration membrane for oily wastewater treatment

محل انتشار:

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خلاصه مقاله:

Oily wastewater in Tehran refinery has become an important source of environmental pollution which should be solved urgently.In present paperan experimental study on separation of oil from oily wastewater has been investigated. For this purpose a poly acrylonitrile membranewith a molecular weightcut-off (MWCO) of 20 kDa has been usedand an outlet wastewater of API unit of Tehran refinery was employed.The main purpose of this study is to develop a SVM-based model for permeation flux decline and fouling resistance in a cross-flow hydrophilic PAN membrane during ultrafiltration process. The operating conditions which have been applied to develop a SVM model wereTrans- Membrane Pressure (TMP), operation temperature, Cross Flow Velocity (CFV), pH values of oily wastewater,permeation flux decline and fouling resistance. The testing results obtained by the SVM models are in a very good match with experimental data. The calculated squared correlation coefficients for permeation flux decline and fouling resistance were both 0.99. Based on the resultsof this case study SVM proved to be a reliable accurate estimation method.

کلمات کلیدی:

Polyacrylonitrile; Permeation flux decline; Fouling resistance; Support vector machine

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