

## عنوان مقاله:

Investigation of Fouling Reduction Methods of Reverse Osmosis Membrane Used for Treatment of Ion Exchange Resins Regeneration Wastewater

## محل انتشار:

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

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## خلاصه مقاله:

In this study, fouling reduction methods of reverse osmosis (RO) membrane for treatment of ion exchange resins regeneration wastewater were evaluated. This wastewater has  $us/cm$ . For fouling reduction, we must perform the plan in four steps: feed pretreatment, modification of operation conditions, fouling identification and chemical cleaning. First, we set up a pilot plant to evaluate 4 steps. For feed water pretreatment, we conducted the procedures as lowering turbidity and removal of oxidizing agent by filters and pH adjustment. In order to reduce calcium carbonate scaling probability, the pH adjustment to 7 was done by sulfuric acid. For modification of operation conditions (pressure and cross flow velocity), 9 experiments have been done as a pilot plant in different pressures and cross flow velocities in the membrane cell with the small flat sheets of TORAY seawater membrane. Results showed that 25 bar pressure and 0.54 m/s cross flow velocity with permeate flux equal to  $40.6(l/m^2.hr)$  were the optimum wastewater treatment conditions. So with SEM, SEM-EDX, XRD and XRF tests revealed that fouling layer mainly consists of iron oxides. Chemical cleaning with citric acid showed the best results.

## کلمات کلیدی:

chemical cleaning, feed pretreatment, fouling identification, fouling reduction, reverse osmosis

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/115740>

