

## عنوان مقاله:

Removal of manganese from an aqueous solution using Micellar-Enhanced Ultrafiltration (MEUF) with SDS surfactants

## محل انتشار:

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## خلاصه مقاله:

In the present study, micellar-enhanced ultrafiltration (MEUF) was used to remove manganese (Mn) (II) from synthetic wastewater. The effects of different operational conditions on the filtration performance of MEUF or the membrane were studied. It was found that the transmembrane pressure has a major influence on the permeate flux and an insignificant effect on the rejection coefficient. The permeate flux increased almost linearly with operating pressure, ranging from 0.35 L min<sup>-1</sup>m<sup>-2</sup>at 1 bar to 1.79 L min<sup>-1</sup>m<sup>-2</sup>at 4 bar. When the pH of the feed solution was changed from 3 to 13, the permeate manganese concentration decreased considerably while the rejection of manganese increased from 75.37% to 99.78%. The results showed that by adding SDS anionic surfactant, the permeate flux and the removal efficiency of manganese increased. The retention of Mn (II) increases from 47% in the absence of SDS to around 97% with 10mM SDS. In this state, the MEUF system has a rejection of above 97 percent of manganese. The Mn rejection increased slightly with an increase of operating pressure, ranging from 89.658 at 1 bar to 97.971 at 4 bar. Adding NaCl to the solution provokes the complexation of metal cations with chloride ions and the adsorption competition of sodium cations with the metal ions; therefore, the conductivity increment decreases the metal retention.

The presence of 60 mM of NaCl reduced the removal efficiency by 50–60%

## کلمات کلیدی:

MEUF, ultrafiltration, manganese, SDS

## لینک ثابت مقاله در پایگاه سیویلیکا:

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