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**Investigation on suppression of fouling by magnetically responsive nanofiltration
membranes**

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Abstract

Magnetically responsive nanofiltration membranes have been developed by attaching a superparamagnetic nanoparticle to the end of polymer chains grafted from the surface of commercially available nanofiltration membranes. In an oscillating magnetic field, movement of these magnetically responsive polymer chains leads to break up of the concentration polarization boundary layer. Experiments using feed streams consisting of an organic salt, an inorganic salt, as well as a synthetic oily wastewater have been conducted for periods of up to 6 hours in order to determine the effect on long term membrane fouling. The results indicate suppression of long term fouling in the presence of an oscillating magnetic field.

Keywords: atom transfer radical polymerization, concentration polarization, fouling, flux, rejection, surface modification,

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