



Electrochemical characterization of an ultrafiltration regenerated cellulose/polypropylene supported membrane

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Received 29 July 2010; Accepted 20 October 2010

ABSTRACT

Electrochemical characteristic parameters such as diffusional permeability, ion transport number, fixed charge concentration and electrical resistance for a regenerated cellulose/polypropylene-supported membrane (RC/PP sample) in contact with NaCl solutions at different concentrations were determined. The effect of the polypropylene support on mass and charge transport was estimated by comparing results obtained for both opposite fluxes and differences seem to be related to the stagnant solution layer embedded in the polypropylene support, which could mask membrane properties. Moreover, effective membrane thickness (RC-layer thickness) must be estimated to determine intensive membrane parameters (salt and ions diffusion coefficients or conductivity). Good agreement for ion diffusion coefficient values was obtained by comparing results obtained from different types of measurements (combination of membrane potential-salt diffusion and impedance spectroscopy, respectively).

Keywords: Electrochemical characterization; Salt diffusion; Membrane potential; Streaming potential; Impedance spectroscopy

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