Effect of acid/basic solutions contact on ion transport numbers and conductivity for an anion-exchange membrane

B. Porras, V. Romero, J. Benavente*

Grupo de Caracterización Electrocinética en Membranas e Interfases, Facultad de Ciencias, Departamento de Física Aplicada I, Universidad de Málaga, Málaga, Spain, Tel. +34 952132382; email: beatrizprodriguez@hotmail.com (B. Porras), virgirom@uma.es (V. Romero), Tel. +34 952131929; email: J_Benavente@uma.es (J. Benavente)

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ABSTRACT

Electrical parameters for a commercial positively charged membrane and after submerged for 1 month in 0.1 M acidic solution (HCl) or 0.1 M basic solution (NaOH) were determined by measuring membrane potential and electrical resistance using NaCl solutions. Changes in the values of the cation transport number in the membranes and in the conductivity as a result of chemical treatments were determined, while membrane surface modification was obtained from contact angle measurements. Moreover, the effect of pilot plant wastewaters on both membrane transport number and conductivity have also been determined and compared with those obtained for the model solutions. According to these results, membrane immersion in the HCl solution hardly affects to transport parameters and membrane surface, while the NaOH treatment significantly modified all the studied parameters and its effect is even more important than that caused by plant wastewaters.

Keywords: Charged membranes; HCl/NaOH treatment; Membrane potential; Conductivity; Contact angle

*Corresponding author.

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