

Lakomska, S., Wisniewski, J.A. Bromide Ion Removal from Water Solutions by Donnan Dialysis. *Ochrona Srodowiska* 2012, Vol. 34, No. 1, pp. 33–39.

Abstract: The primary objective of this experimental study was to remove bromide ions from water by an anion-exchange membrane process. The experiments involved Donnan dialysis, which was carried out with two types of anion-exchange membranes, Selemion AMV or Neosepta ACS, at various NaCl concentrations in the receiver. The experimental set-up was fed with a model solution or natural water varying in ionic composition. The highest efficiency of bromide removal from the model solution amounted to 78% and was achieved with Selemion AMV at an NaCl concentration in the receiver of 300 mol/m³. The most efficient bromide removal from natural water totaled 90% and was obtained with Neosepta ACS at a relatively low NaCl concentration in the receiver, which amounted to 100 mol/m³. Another major objective of the experiments was to assess the potential for recovering sodium chloride from the spent concentrate (after Donnan dialysis) by the electro-dialysis process. The concentrate recovered *via* this route was reused for bromide ion removal from natural water in the Donnan dialysis process involving Neosepta ACS. The extent of bromide removal from natural water in the ion exchange process combined with the reuse of the concentrate recovered was comparatively high amounting to 78%.

Keywords: Bromide, Donnan dialysis, anion-exchange membrane, recovery, electro-dialysis.