



Comparison of the applicability of selected anion-exchange membranes for production of sulfuric acid by electro-electrodialysis

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ABSTRACT

Five commercially available anion exchange membranes (AEMs) were evaluated in terms of their application to concentration of sulfuric acid by electro-electrodialysis. The membrane susceptibility to acid back diffusion decreased in the following order: ACM > FAB > AAV > AMI > AM-PP. The acid current efficiency decreased with acid concentration due to the proton leakage. The highest current efficiency in wide sulphuric acid concentration range were achieved with AAV and ACM membranes. The ability to concentrate sulphuric acid with tested AEMs raised as follows: AAV > ACM > AMI > AM-PP > FAB. The highest possible concentration of sulfuric acid achieved exceeded 3.5 mol dm^{-3} , however, the usable concentration range was found to be below 1.5 mol dm^{-3} .

Keywords: Acid concentration; Sulfuric acid; Electro-electrodialysis

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