

Modelling and optimization of ammonium sulfate solution electro dialysis. (II) Limiting current density

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Abstract The aim of this work was to obtain new and more accurate data of the limiting current density necessary for the electro dialysis (ED) unit design. The experimental study was carried out on a laboratory-scale electro dialyser five cell pairs TS 2-5 (Eurodia-Tokayama) model, equipped with AMX and CMS type ion exchange membranes of 0.2 m² effective ion exchange area each. Tests were performed for three different flow rates of ammonium sulfate solution 1% (mass) at 303K. In order to determine the accurate limiting current density values the evaluation of current loss through distributors of diluted and concentrated solutions in ED stack was necessary. The new obtained values could be useful for modeling and optimization of ED process..

Keywords: electro dialysis, limiting current density, ion exchange membranes, ammonium sulfate
