

Separation of nickel from cobalt using cation exchange membranes in the presence of chelating agents

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ABSTRACT

Selectivity of metals from aqueous solutions containing chelating agents such as EDTA (ethylenediaminetetraacetic acid), NTA (nitrilotriacetic acid) and citrate was studied in a two-chamber cell separating with a commercial cation-exchange membrane (CEM). In the experiments, equimolar solutions of metal and chelating agent as an anolyte and acid solutions as a catholyte were used, the effect of current density, type of solvent, concentration of catholyte and anolyte solution, type of chelating agent, type of the cation-exchange membrane on the selectivity for metals were determined. The obtained results show that this membrane technique, classified as electrodeposition and electro dialysis, seems to be an applicable method for the selectivity of metals under appropriate conditions.

Keywords: Separation; Chelating agent; Cation-exchange membrane; Electrodialysis; Electrode

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