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Removal and recovery of Cr (III) with emulsion liquid membranes

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ABSTRACT

This work is an experimental study of the removal and recovery of Cr(III) ion from aqueous solutions using the emulsion liquid membrane (ELM) technique. The ELM is a solution of di(2-ethylhexyl) phosphoric acid (D2EHPA) in kerosene as carrier and sorbitan monooleate SPAN 80 as surfactant. The transport capacity of the metallic ion in the ELM and the best conditions of the feed and stripping solutions in batch tests were determined. The results obtained show a good yield in Cr(III) recovery reaching 100% in a relatively short period of time (30 min) with the following operational conditions: feed solution of Cr(III) pH = 4, stripping solution of 5 mol L^{-1} sulfuric acid or 1 mol L^{-1} ammonium persulphate, and an ELM made up of 1 mol L^{-1} D2EHPA in kerosene; 4% (w/w) paraffin and 2% (w/w) SPAN 80.

Keywords: Chromium; Extraction; Emulsion liquid membrane

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