

Recovery of americium(III) from low acid solutions using an emulsion liquid membrane containing PC-88A as the carrier extractant

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ABSTRACT

A liquid emulsion membrane (LEM) containing PC-88A (2-ethylhexylphosphonic acid-2-ethylhexyl monoester) as the carrier extractant and SPAN-80 as the surfactant was used to pre-concentrate Am³⁺ from dilute acid solutions. Out of the various stripping agents evaluated as the internal phase, 0.1 M oxalic acid was found to be the most effective. The effect of various factors such as: external phase pH, equilibration time, PC-88A concentration, SPAN 80 concentration, phase volume ratio, etc. on Am³⁺ mass transfer was investigated. The emulsion was broken by the addition of solvents such as acetone and the actual mass transfer obtained after breaking the emulsion agreed well with that obtained by the difference method.

Keywords: Americium; Liquid emulsion membrane; Separation; PC-88A

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