

Separation of zinc ions from an acidic mine drainage using a stirred transfer cell-type emulsion liquid membrane contactor

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This is a report on the separation and recovery of zinc ions from an acidic mine drainage using a stirred transfer cell-type emulsion liquid membrane contactor. Di(2-ethylhexyl) phosphoric acid was used as a highly selective carrier for the transport of zinc ions through the emulsified liquid membrane. A study was made of the effect on the extraction extent and initial extraction rate of the following variables: pH and initial metal concentration of the feed phase, carrier content in the organic solution, a stripping agent concentration in the receiving phase, and stirring speed in the transfer cell. The content of sulfuric acid as a stripping agent did not show in the studied range any significant influence on metal permeation through the SLM, although a minimum hydrogen ion concentration of 100 g/L is suggested in the internal aqueous solution to ensure an acidity gradient between both aqueous phases to promote the permeation of metal ions toward the strip liquor.

Results show that u