

RESEARCH PAPERS

有机磷(膦)酸对碱土金属的萃取

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摘要 Solvent extraction equilibria of four main alkaline earth metals (magnesium, calcium, strontium and barium) with di(2-ethylhexyl) phosphoric acid (DEHPA), 2-ethylhexyl phosphonic acid mono-(2-ethylhexyl) ester, di(2,4,4-tri-methylpentyl) phosphinic acid and IR spectra of the extracts have been studied. The selectivity order is dependent on the e/r value and hydration energy of the metal ions. The minor shift of the P-O in IR absorption of the alkaline earth metal extracts indicates that the interaction between the metal ions and P-O is much weaker for alkaline earth metals than for transitional metals. The distribution of the four alkaline earth elements between aqueous solutions and solutions of DEHPA and neutral organophosphorus compounds, tri-n-butyl phosphate (TBP) or tri-octyl phosphine oxide (TOPO) in kerosene have been determined at varying ratio of TBP or TOPO to DEHPA and the positive synergism is observed. The synergic effect is explained by using IR spectra of the loaded organic phase.

关键词 [solvent extraction](#) [alkaline earth metals](#) [di\(2-ethylhexyl\) phosphoric acid \(DEHPA\)](#)

分类号

Solvent Extraction of Alkaline Earth Metals with Alkylphosphorus Acids

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Abstract

Solvent extraction equilibria of four main alkaline earth metals (magnesium, calcium, strontium and barium) with di(2-ethylhexyl) phosphoric acid (DEHPA), 2-ethylhexyl phosphonic acid mono-(2-ethylhexyl) ester, di(2,4,4-tri-methylpentyl) phosphinic acid and IR spectra of the extracts have been studied. The selectivity order is dependent on the e/r value and hydration energy of the metal ions. The minor shift of the P-O in IR absorption of the alkaline earth metal extracts indicates that the interaction between the metal ions and P-O is much weaker for alkaline earth metals than for transitional metals. The distribution of the four alkaline earth elements between aqueous solutions and solutions of DEHPA and neutral organophosphorus compounds, tri-n-butyl phosphate (TBP) or tri-octyl phosphine oxide (TOPO) in kerosene have been determined at varying ratio of TBP or TOPO to DEHPA and the positive synergism is observed. The synergic effect is explained by using IR spectra of the loaded organic phase.

Key words [solvent extraction](#) [alkaline earth metals](#) [di\(2-ethylhexyl\) phosphoric acid \(DEHPA\)](#)

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