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Investigation of aggregation and acid dissociation of new cationic exchangers for liquid-liquid extraction

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Abstract

Potentiometric titration and Vapour Pressure Osmometry were used to characterise the acidic properties in an acidic chloride solution and the aggregation behaviour in *n*-heptane of a series of four extractants synthesized in the present work and derived from bis-(2-ethyl-hexyl-phosphoric) acid, a commercial extractant noted D2EHPA. Four other commercial organophosphorus extractants (D2EHPA, Cyanex 272, Cyanex301, Ionquest 801) were also characterized by these techniques. Their hydrophobicity was also investigated by determining the partition coefficient of the monomeric form between an acidic chloride solution and *n*-dodecane. The *p*_k*a* values, the dimerization and trimerisation constants were deduced from experimental results by means of appropriate physicochemical models.

Keywords: Acidic dissociation constant; cationic exchanger; dimerisation; physicochemistry; trimerisation; solvent extraction.

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