

# REACTIVE SORPTION OF AMINO ACIDS ON IMPREGNATED RESINS

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## ABSTRACT

Solvent-Impregnated Resins (SIR) are known as novel and effective media for selective separation of metals and carboxylic acids from aqueous solutions. The organophosphorus extractant di(2-ethylhexyl)phosphoric acid (DEHPA) has been found to be a good carrier for the extraction of amino acids and was impregnated on a macroporous XAD resin. Sorption equilibria of L-Phenylalanine (L-Phe) from aqueous solution with DEHPA-SIR were studied in batch experiments by varying the initial amino acid concentration and the extractant concentration in the resin phase.

For the modelling, it was assumed that only the cationic form of L-Phe can be extracted by DEHPA. The reaction mechanism applied to explain the sorption behaviour of amino acid using DEHPA is a set of two reactions that satisfactorily predict the dependence of the apparent equilibrium constant on the loading ratio (ratio of concentration of amino acid in the organic phase in equilibrium to initial concentration of carrier).

The desorption process and the loss of DEHPA during an adsorption-desorption process are also discussed.