

Characterization of chemical kinetics in membrane-based liquid-liquid extraction of molybdenum(VI) from aqueous solutions

Valdés, H.

Romero, J.

Sanchez, J.

Bocquet, S.

Rios, G. M.

Valenzuela, F.

This study aims to describe the mass transfer in a membrane-based solvent extraction system for the extraction of molybdenum(VI) from aqueous solutions, identifying chemical kinetics of the complex formation at the interface. The analyzed process is the membrane-based solvent extraction of molybdenum(VI) from aqueous solutions with n-hexane containing Alamine 336 as extraction phase using a hollow fiber contactor. This extraction process has been described through a resistances-in-series model, taking into account transport and thermodynamic relationships. In this work, the model has been used to identify an effective reaction rate expression and to describe the mass transfer by complex formation at the interface. The reaction rate expression has been estimated from experimental data obtained in a previous work [F. Valenzuela, H. Aravena, C. Basualto, J. Sapag, C. Tapia, Separation of Cu^{2+} and molybdenum(VI) from mine waters using two microporous extraction systems, Separation Science