

Studies on Separation of Scandium from Sulfate Environment Using Ion Exchange Technique

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Abstract : The ion exchange method was used to assess the absorption of sulfate media from laboratory-grade materials. The Taguchi method was employed for determining the optimum conditions for scandium adsorption. Results show that optimum conditions for scandium adsorption from sulfate were obtained by Purolite C100 cationic resin in 0.1 g/l sulfuric acid and scandium concentration of 2 g/l at 25 °C. Studies also showed that lowering H₂SO₄ concentration and aqueous phase temperature leads to an increase in Sc adsorption. Visual Minteq software was used to ascertain the various possible cation types and the effect of concentration of scandium ion species on scandium adsorption by cationic resins. The simulation results of the above software show that scandium ion species are often cationic species that are consistent with experimental data.

Keywords : scandium, ion exchange resin, simulation, leach copper

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