

Chelating ion exchange properties of terpolymer resin 2,4-DHPOF-II derived from 2,4-dihydroxypropiophenone

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ABSTRACT

Terpolymer resin 2,4-DHPOF-II was synthesized by the condensation of 2,4-dihydroxypropiophenone (2,4-DHP) and oxamide (O) with formaldehyde (F) in the presence of 2 M HCl as catalyst at $126\pm 1^\circ\text{C}$. Terpolymer was characterized by UV-visible, IR, ¹H NMR spectral and thermal analysis. It is proved to be a selective chelating ion exchange terpolymer for Fe³⁺, Cu²⁺, Hg²⁺, Ni²⁺, Co²⁺, Zn²⁺, Cd²⁺ and Pb²⁺ metal ions. Chelating ion-exchange properties of synthesized terpolymer were studied for above mentioned metal ions. A batch equilibrium method was employed to study the selectivity of metal ion's uptake involving the measurements of distribution of given metal ion between sample and solution. Study was carried out using different parameters like pH range, shaking time and media of various ionic strengths.

Keywords: Terpolymers; Thermal analysis; Ion-exchangers; Distribution ratio; Metal ion uptake

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