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Synthesis of Chelating Resin PETU and Its Adsorption to Ag(I)

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收稿日期 修回日期 网络版发布日期 接受日期

摘要 A novel chelating resin (PETU) with thiourea groups in its main chain was synthesized by the reaction of O,O'-butane-1,4-diyl dicarbonisothiocyanatidate and triethylene tetraamine. The adsorption of Ag(I) on PETU was investigated by batch tests. The results showed that adsorption data fitted Boyd's diffusion equation of liquid film and the adsorption was controlled by liquid film diffusion. Under the temperatures between 15~60℃, the adsorption capacity decreased with the increase of temperature, and increased with the increase of initial concentration of Ag(I). The experimental data fitted Langmuir and Freundlich equations, and the correlation coefficients for Langmuir equation were between 0.9965~0.9998, and those for Freundlich equation were between 0.8211~0.9810, and increased with the adsorption temperature. DH, DG and DS calculated by thermodynamic formulae were all negative, which meant that the adsorption process was exothermic and spontaneous, and the entropy decreased during the process. XPS results showed that N, S and O atoms were the electron donors to coordinate with Ag.

关键词 chelating resin , Ag(I),adsorption

分类号

DOI:

对应的英文版文章:206381

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