



Volume 102, Issue 4

15 November 2006

Pages 3978-3985

Sorption of Cr(III)-containing cations on strongly basic anion exchangers

Drutsa Raisa, Gutsanu V., Rusu V.

<https://doi.org/10.1002/app.24278>

Abstract

It is shown that strongly basic anion exchangers AV-17 and Varion-AD in definite conditions are able to retain Cr(III)-containing ions from Cr(III) sulfate solution. It is found that the sorption of Cr(III)-containing ions on the polymers is essentially dependent on the pH, temperature, and Cr(III) sulfate concentration. The maximum temperature dependence of sorption was found to be about 60°C. The sorption isotherms are well described by Langmuir's equations. The sorption kinetics is determined by the diffusion of Cr(III)-containing ions into polymer's phase. It is assumed that the Cr(III)-containing ions are retained through formation, in polymer's phase, of the jarosite-type mineral compounds: $R_4N[Cr_3(OH)_6(SO_4)_2]$, $H_3O[Cr_3(OH)_6(SO_4)_2]$, and $K[Cr_3(OH)_6(SO_4)_2]$. For comparison of sorptional capacities, the sorption of Cr(III)-containing ions was determined on different cation and anion exchangers.