

Anion exchangers with alkyl substituted guanidyl groups gold sorption and Cu(II) coordination.

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Streszczenie

Two methods of introducing guanidyl groups into polymer matrix were investigated in this work: the reaction of cyanamide (alkyl substituted cyanamides) and carbodiimides with amino groups in modified polystyrene. The new anion exchangers (AEG) with alkyl substituted guanidyl groups contain 1.5–2.3 mmol/g of ligands and exhibit high selectivity towards $\text{Au}(\text{CN})_2^-$ anions. From the solution containing 2 ppm of gold the sorption is as high as 30 mg/g. Furthermore, AEG reveal high affinity towards tetrachloroaurate anions. The $\log K$ in diluted solution is about 5. The values of gold sorption as dicyanoaurate or tetrachloroaurate anions on AEG with alkyl substituted hydrogen atoms in guanidyl groups is two–four times higher than sorption on anion exchangers synthesized previously by exchange of chlorine with guanidine or aminoguanidine. The EPR studies of Cu(II)-loaded AEG were undertaken to correlate the structural properties of the formed complexes with the nature of the ligands, the ligand concentration, water regain of the resins and pH.

Słowa kluczowe

Anion exchanger, Substituted guanidyl ligands, Guanidine resin, Gold sorption, Dicyanoaurate sorption, Tetrachloroaurate sorption, Copper(II) sorption EPR, Copper(II) complexes

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