Coordinating properties of polymers with N-substituted diamides of malonic acid towards Cu(II); EPR studies.

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New chelating resins containing N-substituted diamides of malonic acid have been contacted with various Cu(II) solutions and the structural parameters of complexes formed have been investigated using the EPR method. Correlation between EPR spectra obtained and Cu(II) uptake shows that two main factors are influencing the ability of the ligand to coordinate metal ion. The first is the length of the pendant group (distance from the backbone chain) facilitating ligand accessibility and the second is the ligand potential to create a chelate ring with Cu(II). This effect is dominant in resins with N-substituted diamides of malonic acid, in which neighbouring ligands can cooperate efficiently. At higher pH, unusually stable Cu(II) complexes are formed by resins with 2-aminoethyl and 2-aminomethylpyridine substituted diamides of malonic acid due to the involvement of deprotonated amide nitrogen and formation of tetradentate ligands.

Słowa kluczowe

Malonamide resins, Cu(II) complexes, EPR

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