



Removal of micro complex copper in aqueous solution with a dithiocarbamate compound

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ABSTRACT

In this article, DTC-S, a kind of heavy metal capturing agent, was chosen to evaluate the removal effects of complex copper solutions. The complex copper was 5.0 mg/l. The Cu(II)-NH₃ was easily removed due to its similarity of free Cu²⁺ in aqueous solution, and the suitable conditions were initial pH 9.0, 20 mg/l DTC-S and one hour's precipitation. The Cu(II)-EDTA and Cu(II)-Cit were more stable due to their ligands. To reach the standard, the optimal dosage of DTC-S was doubled, and the initial pH was adjusted between 9.5–11.5. The removal rate slightly decreased when external metal ions existed in Cu(II)-EDTA solution. Infrared spectra and SEM micrographs showed the DTC-S was a dithiocarbamate compound, whose functional groups could chelate copper ions in copper complexations.

Keywords: Cu(II)-NH₃; Cu(II)-EDTA; Cu(II)-Cit; Removal rate; Micro complex copper; Heavy metal capturing agent; DTC-S

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