

## Copper coprecipitation with hydrous iron oxide in aqueous solutions: Spectroscopic, thermal and macroscopic analyses

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### ABSTRACT

Copper co-precipitation with hydrous iron oxide was investigated through spectroscopic, thermal and macroscopic analyses at different pH. Solid samples were prepared from aqueous solutions of iron(III) and copper(II) and characterized by scanning electron microscopy/energy-dispersive spectroscopy (SEM-EDS), X-ray diffraction analysis (DRX) and thermal analyses. The co-precipitation of copper with Fe(III) retards the hydrous iron oxide transformation at pH < 8. The X-ray diffraction patterns of the heated samples suggest the formation of hematite and copper ferrite. The results of desorption experiments indicate that copper is bound to the surface and incorporated within the oxide.

**Keywords:** Copper; Hydrous iron oxide; Coprecipitation; Desorption; Thermal analyses; X-ray diffraction

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