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EXPERIMENTAL AND THERMODYNAMIC ASSESSMENT OF THE FLUORIDE-RICH REGION IN THE Cu-O-F SYSTEM

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HIGHLIGHTS :

- DSC experiments with a closed crucible in fluoride-rich region of the Cu-O-F system.
- Phase transitions in the CuF₂-Cu and CuF₂-Pt systems in presence of CuO impurity.
- Formation of Cu₂O after three or four DSC runs.
- Thermodynamic model for the fluoride-rich region of the Cu-O-F system.
- The Modified Quasichemical Model was used to model the molten oxyfluoride phase.

ABSTRACT

A thermodynamic evaluation and optimization of the CALPHAD type of the Cu-O-F system, together with phase diagram measurements, are considered in the present work as the first step towards a complete evaluation of Cu in the multicomponent system Cu-Fe-Ni-Na-Al-Ca-O-F. Differential Scanning Calorimetry experiments were conducted using a closed crucible to identify the phase transitions in the CuF₂-Cu and CuF₂-Pt pseudo-binary systems in the presence of oxide impurities. The thermograms and the diffractograms, as measured by X-Ray Diffraction, showed that reactions occurred in

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