

Accepted Manuscript

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

Authors: Frédéric Deschênes-Allard, Christian Robelin, Didier Zanghi, Sylvie Bouvet, Sandra Ory, Emmanuel Véron, Kelly Machado, Catherine Bessada, Patrice Chartrand



PII: S0040-6031(17)30308-8
DOI: <https://doi.org/10.1016/j.tca.2017.11.013>
Reference: TCA 77880

To appear in: *Thermochimica Acta*

Received date: 17-5-2017
Revised date: 7-11-2017
Accepted date: 27-11-2017

Please cite this article as: Frédéric Deschênes-Allard, Christian Robelin, Didier Zanghi, Sylvie Bouvet, Sandra Ory, Emmanuel Véron, Kelly Machado, Catherine Bessada, Patrice Chartrand, EXPERIMENTAL AND THERMODYNAMIC ASSESSMENT OF THE FLUORIDE-RICH REGION IN THE Cu-O-F SYSTEM, *Thermochimica Acta* <https://doi.org/10.1016/j.tca.2017.11.013>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

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

Frédéric Deschênes-Allard¹, Christian Robelin¹, Didier Zanghi², Sylvie Bouvet³, Sandra Ory², Emmanuel Véron², Kelly Machado², Catherine Bessada², Patrice Chartrand^{1*}

¹Centre de Recherche en Calcul Thermochimique (CRCT), Polytechnique Montréal, Montréal (Québec), Canada H3C 3A7

²Conditions Extrêmes et Matériaux : Haute Température et Irradiation (CEMHTI), 1D avenue de la Recherche Scientifique, 45071 Orléans cedex 2, France

³Rio Tinto Aluminium, Aluval, 725, rue Aristide Bergès, BP 07, 38341 Voreppe, France

*Corresponding author (patrice.chartrand@polymtl.ca)

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

Download English Version:

<https://daneshyari.com/en/article/7061975>

Download Persian Version:

<https://daneshyari.com/article/7061975>

[Daneshyari.com](https://daneshyari.com)