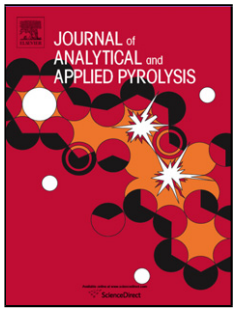

Title: Pyrolysis of arsenic-bearing gypsum sludge being substituted for calcium flux in smelting process

Authors: Xun Li, Xing Zhu, Xianjin Qi, Kongzhai Li, Yonggang Wei, Hua Wang, Jianhang Hu, Xinghuan Hui, Xin Zhang

PII: S0165-2370(17)30870-7
DOI: https://doi.org/10.1016/j.jaap.2018.02.002
Reference: JAAP 4255

To appear in: *J. Anal. Appl. Pyrolysis*

Received date: 29-9-2017
Revised date: 3-2-2018
Accepted date: 3-2-2018

Please cite this article as: Xun Li, Xing Zhu, Xianjin Qi, Kongzhai Li, Yonggang Wei, Hua Wang, Jianhang Hu, Xinghuan Hui, Xin Zhang, Pyrolysis of arsenic-bearing gypsum sludge being substituted for calcium flux in smelting process, Journal of Analytical and Applied Pyrolysis https://doi.org/10.1016/j.jaap.2018.02.002

Pyrolysis of arsenic-bearing gypsum sludge being substituted for calcium flux in smelting process

Xun Li[a], Xing Zhu[a,*], Xianjin Qi[a], Kongzhai Li[a], Yonggang Wei[a], Hua Wang[a], Jianhang Hu[a], Xinghuan Hui[b], Xin Zhang[b]

[a]State Key Laboratory of Complex Nonferrous Metal Resources Clean Utilization, Faculty of Metallurgical and Energy Engineering, Kunming University of Science and Technology, Kunming 650093, China;

[b]Chuxiong Dianzhong Non-ferrous Metal Co. Ltd, Chuxiong 675000, China

***Corresponding author:** Associate Prof. Xing ZHU, E-mail: zhuxing2010@hotmail.com

Highlights

- The pyrolysis of arsenic-bearing sludge is studied by TG-FTIR.
- Arsenic migration and decomposition pathway of gypsum are probed.
- Co-disposal method in ISASMELT copper smelting process is proposed for ABG sludge.

Abstract: Arsenic-bearing gypsum (ABG) sludge, one of the biggest hazardous waste in the nonferrous metals industry, greatly threatens the ecological safety due to possible leakage and diffusion risks. However, the state-of-the-art techniques suffer great challenges for the disposal of ABG sludge due to its properties including worthless constituents, high arsenic leaching toxicity, and tremendous output. In this work, the pyrolysis of ABG sludge is studied aiming to propose a flexible and facile co-disposal method by using ABG sludge as calcium flux instead of limestone in smelting processes. The pyrolysis behaviour and arsenic migration are investigated in the