

Accepted Manuscript

New Vacuum Distillation Technology for Separating and Recovering Valuable Metals from a High Value-added Waste

Guozheng Zha, Chongfang Yang, Yunke Wang, Xinyu Guo, Wenlong Jiang, Bin Yang

PII: S1383-5866(18)31824-0
DOI: <https://doi.org/10.1016/j.seppur.2018.09.038>
Reference: SEPPUR 14936

To appear in: *Separation and Purification Technology*

Received Date: 27 May 2018
Revised Date: 18 August 2018
Accepted Date: 12 September 2018

Please cite this article as: G. Zha, C. Yang, Y. Wang, X. Guo, W. Jiang, B. Yang, New Vacuum Distillation Technology for Separating and Recovering Valuable Metals from a High Value-added Waste, *Separation and Purification Technology* (2018), doi: <https://doi.org/10.1016/j.seppur.2018.09.038>

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.



**New Vacuum Distillation Technology for Separating and Recovering Valuable Metals
from a High Value-added Waste**

Guozheng Zha^{1,2}, Chongfang Yang³, Yunke Wang², Xinyu Guo², Wenlong Jiang^{*2}, Bin Yang^{1,2}

1.The State Key Laboratory of Complex Non-ferrous Metal Resources Clean Utilization, Kunming University of Science and Technology, Kunming 650093, PR China

2.National Engineering Laboratory for vacuum Metallurgy, Kunming University of science and Technology, Kunming, Yunnan 650093, PR China

3.Yunnan metallurgical Group Chuang Neng Metal Fuel Cell Co. Ltd., Kunming, Yunnan 650503, PR China

Abstract:

Flotation tailings of copper-anode slime is a high value-added waste. A new, clean and highly efficient vacuum distillation process is presented for the separation of valuable metals that remain in the waste. In this work, the saturated vapor pressure of each metal element in the flotation tailings is theoretically analyzed, with vapor-liquid equilibria (VLE) diagrams used to quantitatively predict the composition of the products. The optimum distillation temperature and time of volatilization behavior of each component are investigated using a two-step, low-temperature and high-temperature vacuum distillation experiment; the system pressure of both steps is 1–5 Pa. The experimental results indicate that the recovery efficiencies of Se and Te are 98.09% and 97.82%, respectively, after the low-temperature distillation (923 K and 120 min); the removal rates of Pb, Sb and Bi are 92.99%, 96.86% and

Download English Version:

<https://daneshyari.com/en/article/11003356>

Download Persian Version:

<https://daneshyari.com/article/11003356>

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