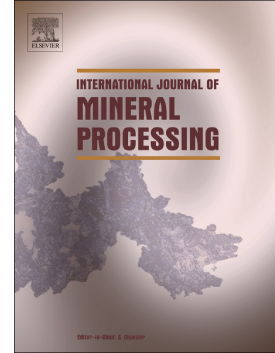


## Accepted Manuscript

A study on novel reactive oily bubble technology enhanced collophane flotation

Fang Zhou, Louxiang Wang, Zhenghe Xu, Yaoyang Ruan, Ruan Chi



PII: S0301-7516(17)30234-X

DOI: doi:[10.1016/j.minpro.2017.10.011](https://doi.org/10.1016/j.minpro.2017.10.011)

Reference: MINPRO 3116

To appear in: *International Journal of Mineral Processing*

Received date: 8 November 2016

Revised date: 26 October 2017

Accepted date: 28 October 2017

Please cite this article as: Fang Zhou, Louxiang Wang, Zhenghe Xu, Yaoyang Ruan, Ruan Chi , A study on novel reactive oily bubble technology enhanced collophane flotation. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Minpro(2017), doi:[10.1016/j.minpro.2017.10.011](https://doi.org/10.1016/j.minpro.2017.10.011)

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.

# A study on novel reactive oily bubble technology enhanced collophane flotation

Fang Zhou<sup>1</sup>, Louxiang Wang<sup>3</sup>, Zhenghe Xu<sup>3</sup>, Yaoyang Ruan<sup>2</sup>, Ruan  
Chi<sup>1\*,2</sup>

<sup>1</sup> Key Laboratory for Green Chemical Process of Ministry of Education, School of Chemical Engineering and Pharmacy, Wuhan Institute of Technology, Wuhan, Hubei, P.R. China 430073

<sup>2</sup> School of Minerals Processing & Bioengineering, Central South University, Changsha, Hunan, P.R. China 410083

<sup>3</sup> Department of Chemical and Materials Engineering, University of Alberta, Edmonton, Alberta, Canada T6G 2V4

**Abstract:** Collophane is an important phosphate mineral, which has proven to be difficult to float from gangue. In this work, the novel application of reactive oily bubbles to enhance collophane flotation is reported. Three different types of bubbles, conventional air bubble, oily bubbles (kerosene only) and reactive oily bubbles (kerosene containing fatty acids) approaching collophane particles were studied by measurements of zeta potential, induction time and contact angle. The reactive oily bubble shows negligible effects on the zeta potential of collophane particles. A shorter induction time of reactive oily bubble was found at pH 6.0 and/or at pH 9.0 relative to the conventional air bubbles and the oily bubbles. This suggests a strong collection power of reactive oily bubble. Advancing contact angles of the reactive oily bubble on collophane increased dramatically with pH. At pH 9.0, a contact angle of 120 degrees was observed where the reactive oily bubble flotation is anticipated. Micro-flotation results demonstrate the superiority of reactive oily bubbles over air bubbles for

---

\* Corresponding author. Tel: +86-027-87195682; fax: +86-027-87195682.

E-mail address: [rac@wit.edu.cn](mailto:rac@wit.edu.cn)

Download English Version:

<https://daneshyari.com/en/article/6659361>

Download Persian Version:

<https://daneshyari.com/article/6659361>

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