Reexamining the Role of Ammonium Ions in the Sulfidization, Xanthate-Flotation of Malachite

Ruizeng Liu 1, Zhicheng Liu 2, Jianmin Li 3, Shunfu Ao 2, Bin Pei 1, Dianwen Liu 1,*, Jialei Li 1,*

1 Faculty of Land Resources Engineering, Kunming University of Science and Technology, Kunming 650093, Yunnan, China
2 Chihong Technology & Engineering Co. Ltd, Qujing, Yunnan 655000, China
3 Northwest Research Institute of Mining and Metallurgy, Baiyin 730900, Gansu, China
* Correspondence: dianwenliu@kmust.edu.cn (D. Liu); lijialei1993@foxmail.com (J. Li);

Fig. S1 Schematic diagram of flotation devices

Fig. S1 shows a schematic diagram of flotation devices, including nitrogen gas source, buffer bottle, mercury barometer, magnetic stirrer and Hallimond tube. As shown in Fig. S1, the nitrogen gas was used as flotation gas source; the mercury barometer was used to detect air pressure; and flotation tests were carried out in the Hallimond tube.