

 论文摘要

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脆硫锑铅矿在乙硫氮-饱和Ca(OH)<sub>2</sub>体系中的电化学余润兰<sup>1, 2</sup>, 邱冠周<sup>1</sup>, 胡岳华<sup>1</sup>, 覃文庆<sup>1</sup>

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**摘要:** 采用循环伏安和交流阻抗法研究了脆硫锑铅矿在乙硫氮-饱和Ca(OH)<sub>2</sub>体系中的电化学, 讨论了电位调控浮选脆硫锑铅矿的工艺参数。电位在-378~22 mV范围内, 矿物的界面电容不断减少, 介电常数变小, 表面产物是疏水性的(CH<sub>3</sub>)<sub>2</sub>NCSS<sup>-</sup>、Pb((CH<sub>3</sub>)<sub>2</sub>NCSS<sup>-</sup>)<sub>2</sub>和S<sup>0</sup>; 电位在22~222 mV范围内时, 矿物表面的疏水产物膜迅速破裂, 电容增加, 介电常数变大, 界面亲水性增强。随着电位的继续升高, 矿物表面不断产生亲水性离子和Fe(OH)<sub>3</sub>的沉积; 对于乙硫氮-饱和Ca(OH)<sub>2</sub>水溶液体系, 脆硫锑铅矿的电位调节浮选的工艺参数应控制在-178~122 mV之间, 实际工艺中电位控制在-78 mV~50 mV范围为宜。

**关键词:** 浮选电化学; 脆硫锑铅矿; 乙硫氮Electrochemistry of jamesonite in system of diethyl dithiocarbamate and saturated Ca(OH)<sub>2</sub>YU Run-lan<sup>1, 2</sup>, QIU Guan-zhou<sup>1</sup>,  
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**Abstract:** Electrochemistry of jamesonite in the system of saturated Ca(OH)<sub>2</sub> solution containing diethyl dithiocarbamate was investigated by voltammetry and electrochemical impedance methods. The processing parameters of potential-controlled flotation were discussed. The interface capacitance of jamesonite continuously decreased and its medium-charge constant became small when the electrode potential was from -378 mV to 22 mV. The compositions of products on jamesonite surface are hydrophobic (CH<sub>3</sub>)<sub>2</sub>NCSS<sup>-</sup>, Pb((CH<sub>3</sub>)<sub>2</sub>NCSS<sup>-</sup>)<sub>2</sub> and S<sup>0</sup>. When the electrode potential was from 22 mV to 222 mV, its capacitance increases and its medium-charge constant becomes large due to the dissolution of the passive film. The hydrophilicity of jamesonite surface becomes strong. The hydrophilic ions and deposition of Fe(OH)<sub>3</sub> formed with further enhancement of the electrode potential. The processing parameter must be controlled in the range from -178 mV to 122 mV and the potential range from -78 mV to 50 mV is controlled for potential-controlled flotation of jamesonite in the system of diethyl dithiocarbamate and saturated Ca(OH)<sub>2</sub> solution.

**Key words:** flotation electrochemistry; jamesonite; diethyl dithiocarbamate

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