

论文摘要

中国有色金属学报

ZHONGGUO YOUSEJINSHUXUEBAO XUEBAO

第11卷 第4期 (总第43期) 2001年8月

 [PDF全文下载]  [全文在线阅读]

文章编号: 1004-0609(2001)04-0680-04

铝土矿反浮选体系分散与凝聚理论

骆兆军, 胡岳华, 王毓华, 邱冠周

(中南大学 矿物工程系, 长沙 410083)

摘要: 在铝土矿反浮选脱硅过程中, 矿浆悬浮液的分散和凝聚状态对微细粒一水硬铝石的回收和精矿铝硅比有显著影响。要使各种硅酸盐矿物混合物达到有效的选择性分离, 首先必需使矿浆悬浮液处于最佳分散状态, 避免各种矿物细粒间的相互混杂和矿泥罩盖。针对高硅铝土矿反浮选脱硅过程, 根据经典DLVO理论, 从颗粒间的相互作用分析了微细粒一水硬铝石在各种含硅脉石矿物表面的粘附情况。结果表明: 一水硬铝石与含硅脉石矿物颗粒间的范德华相互作用总是吸引; 而它们间的静电相互作用在弱碱性条件下时为排斥, 在弱酸性条件下时为吸引, 一水硬铝石的夹带上浮较为严重, 不利于铝土矿的反浮选。

关键字: 铝土矿; 分散与凝聚; DLVO理论; 浮选

Mechanism of dispersion and aggregation in reverse flotation for bauxite

LUO Zhao-jun, HU Yue-hua, WANG Yu-hua, QIU Guan-zhou

(Department of Mineral Engineering, Central South University,
Changsha 410083, P.R.China)

Abstract: It is required to remove silicate minerals from diasporic bauxite in order to enhance the Al/Si ratio of the bauxite. Flotation, especially reverse flotation, is an effective method for removal of silicate minerals. The particulate state (aggregation/dispersion) of suspension has an evident influence on selective flotation of silicate minerals from diasporic bauxite. The interaction force profiles between diasporic bauxite and kaolinite, illite, pyrophyllite have been calculated and the possible heter-aggregation phenomena between diasporic bauxite and various silicate minerals has been discussed based on classical DLVO theory. Slime coating and heter-aggregation between -aluminium-silicate minerals and diasporic bauxite should be avoided in order to obtain good flotation separation. It is shown by flotation tests that the use of dispersant plays an important role in improving the reverse flotation process of diasporic-bauxite.

Key words: bauxite; dispersion and aggregation; DLVO theory; flotation

版权所有：《中国有色金属学报》编辑部 湘ICP备09001153号

地 址：湖南省长沙市岳麓山中南大学内 邮编： 410083

电 话： 0731-88876765, 88877197, 88830410 传真： 0731-88877197

电子邮箱： f-ysxb@mail.csu.edu.cn