

传递现象

电场强化铜矿排土场氧气传质

左恒, 王贻明, 张杰

中南大学资源与安全工程学院, 湖南 长沙 410083; 台山市建筑工程质量检测站, 广东 台山 529200

收稿日期 2007-3-16 修回日期 2007-7-14 网络版发布日期 2007-12-26 接受日期

摘要

在排土场微生物浸出过程中, 通过电场作用下的气泡受力分析和强化传质实验, 首次提出了利用电场强化氧气向溶浸液中传质过程的方法, 结果表明: 电场能够强化氧气向溶浸液中的传质过程, 而且效果和电场的强弱以及浸矿溶浸液的性质有关; 实验中所加电场强度和溶浸液浓度越高, 电场强化传质的效果越明显。传质速率的大小和传质系数、气泡大小、气泡在水中的运动、气液比以及气相氧气的质量浓度等因素有关。在强度为 $80 \text{ V} \cdot \text{mm}^{-1}$ 的电场作用下, 和没有电场的情况相比, 总传质系数提高28.2%。

关键词

[电场](#) [氧气](#) [传质](#) [气泡](#) [溶浸液](#) [铜矿排土场](#)

分类号

Enhancing mass transfer of oxygen in copper ore dump by electric field

ZUO Heng, WANG Yiming, ZHANG Jie

Abstract

In the process of bioleaching of ore dump, a novel method for enhancing mass transfer of oxygen in leaching solution under electric field was put forward, and some experiments were performed to study its mechanism. The results showed that mass transfer could be enhanced by using electric field, and the effect of electric field on enhancing mass transfer was related to the strength of electric field and the properties of leaching solution. The higher the strength of electric field and the concentration of leaching solution, the more evident the effect of electric field. Mass transfer rate was affected by such factors as mass transfer coefficient, the size and movement of bubble, gas/liquid ratio and mass concentration of oxygen in gas phase. When the strength of electric field was $80 \text{ V} \cdot \text{mm}^{-1}$, total mass transfer coefficient would be 28.2% higher than that without electric field.

Key words

[electric field](#) [oxygen](#) [mass transfer](#) [bubble](#) [leaching solution](#) [copper ore dump](#)

DOI:

通讯作者 左恒 csuzuoheng@163.com

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(476KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“
电场” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [左恒](#)
- [王贻明](#)
- [张杰](#)