



论文摘要

中南大学学报(自然科学版)

ZHONGNAN DAXUE XUEBAO(ZIRAN KEXUE BAN)

Vol.32 No.3 Jun.2001

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文章编号: 1005-9792(2001)03-0243-04

萃取有机相对浸矿细菌的影响

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摘要: 为了了解细菌浸矿效率降低的原因, 研究了铜溶剂萃取过程中的相夹带情况及流失于浸出系统的萃取有机相对浸矿细菌的影响, 提出了相应的提高细菌浸出效率的有效措施. 结果表明: 当有机相中Li x984N的体积分数为1.5%时, 萃余液中夹带的O/W型乳液滴的有效粒径约为600~1 000 nm, 其中部分液滴会在较长时间内稳定存在; 由于有机相中存在酚、硫醇、萘类稠环芳烃等杀菌剂及多种表面活性成分, 使污染环境中的细菌的生长周期延长了5 d, 浸矿能力降低; 不同组成的有机相抑制细菌生长的能力为(由强到弱): 260号工业煤油+1.5%Li x984N→260号工业煤油→循环有机相→正辛烷+1.5%Li x984N→正辛烷.

关键字: 浸铜; 萃取; 有机相; 细菌; 效率

The effects of organic phases in solvent extraction on bioleaching bacteria

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Abstract: The entrainment of solvent in the aqueous raffinate in copper solvent extraction and the effects of solvent lost on bioleaching bacteria are studied. The effective diameters of entrainment droplets in raffinate range from 600 nm to 900 nm when the volume fraction of Li x984N is 1.5%, and some droplets with smaller size could exist in aqueous phase for a long time. The activity and leaching ability of bacteria are deteriorated seriously because there are more kinds of bactericides and surfactants in organic phases, such as phenol and naphthalene. The growing period of bacteria is prolonged by 5 d and leaching ability deteriorated. The bacteriostasis of different composition of organic phases abates in the following order: 260[#] kerosene +1.5% Li x984N→260[#] kerosene→circulated organic phase sampled from factory →octanol+1.5%Li x984N→octanol. Some effective ways to enhance bioleaching efficiency are suggested.

Key words: copper; extraction; organic phase; bacteria; efficiency

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