

عنوان مقاله:

Biological Copper Extraction from Copper Smelters Dust

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

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نویسندگان:

Bakhtiari - Department of Chemical Engineering, Faculty of Engineering, Sistan and Balouchestan University, Zahedan, Iran

Atashi - Department of Chemical Engineering, Faculty of Engineering, Sistan and Balouchestan University, Zahedan, Iran

Zivdar - Department of Chemical Engineering, Faculty of Engineering, Sistan and Balouchestan University, Zahedan, Iran

Seyed Baghery - Hydrometallurgy Research Unit, R & D Center, Sarcheshmeh Copper Complex, Rafsanjan, Iran

خلاصه مقاله:

Biological copper extraction from the copper flue dust in the smelters of Sarcheshmeh Copper Complex has been investigated. At the present, the dust is recycled to the smelters which reduces their efficiencies and increases the required energy for the smelting process. In this study, bioleaching of the copper dust in a continuous system including a feed tank and aerated stirred tank bioreactors was examined as an alternative process. The effects two-stage of different parameters such as pulp densities, residence times and temperatures on the final copper recovery and redox potential were studied. Lower pulp densities resulted in a stable redox potential in both reactors while increasing the pulp density to 7% (w/v) created an unstable redox potential in the first bioreactor especially at lower temperatures. Final copper recoveries calculated for pulp densities of 2%, 4% and 7%, were 95.8%, 92.5% and 91.3% with residence times of 2.7, 4 and 6 days, respectively. The process of dust bio-treating was net acid consuming. The promising results indicate that bioleaching is a feasible process that can be applied to copper flue dusts.

کلمات کلیدی:

Bacteria; bioleaching; bioreactor; copper flue dust

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