عنوان مقاله:

Germanium Cementation from Chloride solution with zinc powder

محل انتشار:

هشتمین کنفرانس و نمایشگاه بین‌المللی مهندسی مواد و متالورژی و سیزدهمین همایش ملی مشترک انجمن مهندسی متالورژی و مواد ایران و انجمن ریخته گری ایران (سال: 1398)

تعداد صفحات اصل مقاله: 7

نویسندگان:

Sara Jalili - *Master of Mineral Processing, Department of Mining Engineering, Imam Khomeini International University, Qazvin, Iran*

Mohsen Bozorgmehr - *Department of Materials Engineering, Malek Ashtar University of Technology,۸۳۱۴۵/۱۱۵ , Shahin .Shahr, Iran*

Majid Askari - *Science and research Branch, Islamic Azad University, Tehran.Iran*

Davood Moradkhani - *Associate Professor of Metallurgy, University of Zanjan. Iran*

خلاصه مقاله:

Germanium is a strategic metal which is finding an increasingly important role in industry such as infrared and fiber optics, catalysts, and semiconductor, energy, chemical catalysis and medicine. The reserves of germanium are discrete and its global distribution is very sparse. As a result, germanium recovered worldwide is a by-product of other metals, mostly zinc, copper, and lead, coal. Hydrometallurgy is the most important candidate for the recovery of germanium. In this study the cementation of germanium from cholorid solutions was investigated. The results show that reaction time, temperature, agitation speed, pH value of solution and the quantity of zinc powder have significant effects on recovering germanium, and the optimum process operating parameters are established as follows: time 30 min, pH value 2.5, the quantity of zinc powder 3 times of the stoichiometry of germanium, agitation speed 600 r/min . and temperature 55 °C. Under these experimental conditions, the recovery ratios of germanium can reach 95.76%

کلمات کلیدی:

Recovery; Germanium; Cementation; Zinc powder