

### 论文摘要

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## 高钴硫酸锌溶液中锌粉净化除钴的机理

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**摘要:** 采用高浓度钴离子的硫酸锌溶液, 研究锌粉置换除钴机理。对置换后的净化渣进行SEM和EPMA分析。研究结果表明, 温度不同时, 表面沉积物的结构也不同, 表面沉积物的结构影响置换的速度。通过对产物结构的研究, 可推测出锌粉置换除钴过程的机理。首先锌粉和钴离子结合形成一种钴-锌合金, 这一反应可以比较快速达到平衡, 然后合金继续和钴离子反应得到钴单质, 这个过程是整个反应的控制步骤。

**关键字:** 硫酸锌溶液; 除钴; 机理

## Mechanism of cobalt removal from high cobalt zinc sulphate solution with zinc powder

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**Abstract:** Zinc sulfate solution with high cobalt concentration was used to study the mechanism of cobalt removal. Residues after the cementation process from zinc sulfate solution were analyzed by SEM and electron probe micro-analysis (EPMA). With the increase of temperature, cobalt removal can be improved considerably. The mechanism of cobalt removal by zinc powder is thought as follows. Firstly, the cobalt ion forms Co-Zn alloy with zinc particles, and the reaction reaches equilibrium quickly; secondly, the Co-Zn alloy continues reacting to Co with  $\text{Co}^{2+}$ , which is the control procedure of the whole reaction.

**Key words:** zinc sulphate solution; cobalt removal; mechanism

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