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碳热氯化法回收重选尾矿中的稀土

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摘要: 采用摇床重选实验方法使尾矿中的稀土元素得到预富集, 获得稀土氧化物(REO)品位为18.02%, 粒径小于74 μm稀土精矿和稀土氧化物品位为9.19%, 粒径大于74 μm稀土精矿, 稀土总回收率为37.26%。采用碳热氯化法分解, 粒径小于74 μm的稀土精矿, 得到氯化稀土。以SiCl₄为脱氟剂, C为还原剂, Cl₂为氯化剂, 750 °C时氯化反应2 h, 氯化率高达91.0%。750 °C氯化产物的酸不溶物的X射线衍射结果表明酸不溶物的主要物相为SiO₂及少量没有完全反应的独居石。

关键字: 尾矿; 稀土; 重选; 碳热氯化; 脱氟剂

Recovery of rare earth from gravity concentrated tailings by carbochlorination

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Abstract: Rare earths in tailings from concentrating mill can be concentrated by gravity concentration. The grades of REO of obtained rare earths concentrate are 18.02% (-74 μm) and 9.19% (+74 μm), respectively. The total recovery of rare earth is 37.26%. Then the rare earth was decomposed by carbochlorination process and the rare earth chloride can be obtained. The chlorinating rate of rare earth is 91.0% for the carbochlorination process at 750 °C for 2 h with carbon as reductant, chlorine gas as chlorination agent, and SiCl₄ as de-fluorination agent. The XRD analysis result shows that the residues obtained at 750 °C are SiO₂ and monazite.

Key words: tailings; rare earth; gravity-concentration; carbochlorination; de-fluorination agent

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