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一水硬铝石焙烧矿增浓溶出及其机理

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摘 要：为了深入研究焙烧对一水硬铝石矿增浓溶出过程的影响及其活化焙烧强化溶出的机理,采用化学法提纯,从铝土矿中得到了高纯的一水硬铝石矿;经不同温度焙烧后进行增浓溶出,考察了焙烧温度对铝土矿增浓溶出效果的影响.研究结果表明:在一定温度范围内,焙烧矿的溶出性能优于未焙烧矿;当焙烧时间一定时,在525℃焙烧的一水硬铝石矿溶出性能明显改善,焙烧矿石中氧化铝可几乎全部溶出.通过X射线衍射对物相、晶体点阵常数的测定以及扫描电镜对焙烧提纯矿形貌的观察,认为强化溶出的主要机制为:一水硬铝石提纯矿在一定条件下焙烧后,由结晶完整的一水硬铝石正交晶型逐渐向结晶不完整的刚玉转变,且矿石表面出现大量的裂纹和孔洞,增加了矿石的比表面积,从而强化了其与碱液反应的能力,溶出性能得到明显改善.

关键字：提纯;一水硬铝石矿;焙烧;强化溶出;机理

Strengthening digestion of roasted diaspore purified by chemical method and its mechanism

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Abstract: The influence of roasting temperature on digestibility of diaspore and its mechanism of strengthening digestion of the roasted diaspore in the sweetening process were preliminarily studied. Diaspore with high purity was obtained from diasporic bauxite by chemical method in this paper. Strengthening digestion of roasting production of purified diaspore was carried out. The results indicate that roasting production of purified diaspore has better digestibility than that of the unroasted one and that diaspore roasted at 525℃for a certain time has the best digestibility. Alumina in the roasting production of purified diaspore at 525℃can almost be turned into the aluminate solution. With scanning electronic micrographs and the measurement of lattice parameters of roasting production of diaspore, the strengthening mechanism of roasting production of purified diaspore was investigated. The results show that strengthening effect should be attributed to the change of structure of diaspore crystal from well crystallized diaspore toworse crystallized corundumand lots of cracks and pores on the surface of activated corundum formed during the roasting process.

Key words:purification; diaspore; roasting; strengthening digestion; mechanism

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