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亚熔盐法回收赤泥

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摘 要: 采用亚熔盐法对赤泥中的 Al_2O_3 和 Na_2O 的回收进行研究。实验第一步通过采用亚熔盐和添加适量石灰乳液回收赤泥中的 Al_2O_3 , 使其中 Al_2O_3 的含量降至4.19%, Al_2O_3 单程回收率达88%; 实验第二步采用低浓度的 NaOH 溶液对赤泥进行深度脱钠, 使得最终赤泥中 Al_2O_3 和 Na_2O 的含量分别降到3.88%和1.39%, $\text{Al}_2\text{O}_3/\text{SiO}_2$ 和 $\text{Na}_2\text{O}/\text{SiO}_2$ 相应降到0.17和0.06; 经过回收 Al_2O_3 和 Na_2O 后的终赤泥呈现出表面疏松多孔的颗粒状形貌。本研究在较低温的条件下综合回收赤泥中的 Al_2O_3 和 Na_2O 。

关键字: 赤泥; 亚熔盐; 氧化铝; 氧化钠

Recovery of Al_2O_3 and Na_2O from red mud by sub-molten salt

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Abstract: The recovery of Al_2O_3 and Na_2O from red mud by sub-molten salt was investigated. In the first stage, via the application of a mixed system comprised of sub-molten salt and lime milk, the content of Al_2O_3 in the red mud was reduced to 4.19% and 88% of Al_2O_3 was recovered. In the second stage, the removal of Na_2O was investigated by using NaOH solution with a low concentration. The results showed as follows: the content of Al_2O_3 in the final red mud with lacunaris configuration was reduced to 3.88%, the content of Na_2O was reduced to 1.39%, $\text{Al}_2\text{O}_3/\text{SiO}_2$ i.e. A/S, decreased to 0.17 and $\text{Na}_2\text{O}/\text{SiO}_2$, i.e. N/S, decreased to 0.06. By the application of sub-molten salt, most Al_2O_3 and Na_2O in red mud was recovered under low temperature.

Key words: red mud; sub-molten salt; alumina; sodium oxide

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