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钢铁厂烟尘直接制取低功耗软磁铁氧体

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摘 要：用钢铁厂烟尘、碳酸锰矿及铁屑作原料,经同时浸出、初步除杂、深度净化、共沉淀及铁氧体工艺等步骤,制取了性能优良的低功耗软磁铁氧体产品.实验结果表明:铁、锰和锌的浸出率分别为88.61%,96.20%和85.85%;氟化除Ca和Mg后的净化液中,Ca和Mg的质量浓度分别为0.003 g/L和0.019 g/L,Ca和Mg脱除率分别为95.00%和94.86%;经深度净化和共沉淀所得共沉粉杂质元素含量为:Ca 0.041%,Mg 0.078%,Al 0.029%,Si0.012%;经“直接法”完全可以制备性能接近日本TDK公司生产的PC40低功耗软磁铁氧体产品性能.

关键字：烟尘;软磁材料;铁氧体

Low function loss soft magnetic ferrite materials made directly from steel plant dust

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Abstract: Soft magnetic ferrite was prepared with raw materials from steel plant dust, manganese carbonate ore and scrap iron by the reaction of simultaneous leaching, deep purification, coprecipitation and ferrite techniques.Experimental results demonstrated that the leaching rate of Fe, Mn, Zn was 86.61%, 96.20% and 85.88%respectively; the concentration of Ca and Mg was 0.003 g/L and 0.019 g/L respectively through the removing reaction of Mg and Ca by NH4F. Coprecipitation powder was obtained after deep purification and coprecipitation reaction, the amount of impurity content of the coprecipitation powder is Ca 0.041%, Mg 0.078%, Al 0.029%, Si 0.012% respectively. The ferrite technology also confirms that soft magnetic ferrite products made by direct method could nearly be equated with PC40 made by Japan TDK Company.

Key words:dust; soft magnetic materials; ferrite

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