

论文

含碳球团—铁浴熔融还原法关键技术的应用基础研究

杜挺;杜昆

冶金工业部钢铁研究总院;北京,100081;冶金工业部钢铁研究总院;北京,100081

摘要: 系统研究了以非焦煤粉和铁精矿粉为基础的含碳球团—铁浴熔融还原新流程的关键技术解决了冷团结合碳球团高温强度问题,提出了含碳球团自还原动力学模型、再氧化机理和提高球团预还原速度、抗氧化能力的技术措施和参数,研制出了具有高配碳量、高强度、高自还原速度、高预还原速度、高抗氧化能力的新型含碳球团。同时,研究了含碳球团在铁浴中熔化还原动力学参数,优化得到了控制还原速度、终还原率、熔渣中最低FeO含量、泡沫渣、铁浴碳含量及脱硫的工艺参数

关键词: 含碳球团 预还原 终还原 铁浴 熔融还原

APPLICATION-BASIS STUDY OF KEY TECHNOLOGIES IN CARBON-BEARING PELLETS-IRON BATH SMELTING REDUCTION PROCESS

DU Ting;DU Kun (Central Iron & Steel Research institute, Ministry of Metallurgical Industry, Beijing 100081)

Abstract: The key technologies in carbon-bearing pellets-iron bath smelting reduction process have been studied systematically, which is based on using non-coke coal and iron concentrate. The experimental research has made a break through in solving problem in high temperature strength of carbon--bearing pellets, which had not been solved during a long time domestically and abroad. The self-reduction kinetic model of carbon-bearing pellets, reoxidation mechanism and the technical measures for speeding up the prereduction rate and improving the resistant properties against the oxidation of the pellets have been put forward. The new carbon-bearing pellets of high carbon content, high strength, high self-reduction rate and high resistance to oxidation have been developed succesfully. Meanwhile, the melting and reduction kinetics of the pellets in iron bath has been studied. The optimized process parameters of contraling the reduction rate, final reducibility, carbon content in hot metal and desulphurisation have been obtained.

Keywords: carbon-bearing iron ore pellet pre-reduction final reduction iron bath smelting reduction

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通讯作者:

作者简介:

作者Email:

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