

Effect of Impurity Element on Reduction Behaviour of Magnetite

Steel Research Int., 78 (2007) No. 2, 91-95, DOI: 10.2374/SRI06SP141-78-2007-91

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The present paper investigates the effect of impurity elements on sintering and reduction behaviour of magnetite solid solution. The main impurity elements of magnetite are Mg, Al, Ca, Mn and small amount of Si. The effects on reduction kinetics and phenomena are studied separately and for each element as well as combinations of them. The content of elements doped in magnetite are at the same levels as in industrially produced sinter. It is found that CaO and MgO significantly accelerate the reduction of magnetite to iron, MnO, however, slightly retards reduction.

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