

论文

磁铁矿在H₂/Ar气氛中还原产物显微结构与形貌变化的原位观测

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摘要: 采用热台显微镜(HSM)技术,直接观测了H₂/Ar气氛中还原时磁铁矿表面显微结构的变化,探讨了不同条件下,铁核不同的形核、长大模式及平均长大速度结果表明、773—1373K温度范围内,在所研究的气氛条件下,主要有四种不同特征的核形貌及相应的核长大模式,各种形貌之间的相互转化以及核的平均长大速度与还原温度和氢分压有关

关键词: 磁铁矿 还原 显微结构 形貌

IN SITU OBSERVATIONS OF MICROSTRUCTURAL AND MORPHOLOGICAL CHANGES OF THE REDUCTION PRODUCT OF MAGNETITE IN H₂/Ar GAS MIXTURES

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Abstract: The microstructural changes occurring on the surface of magnetite samples in H₂/Ar gas mixture have been directly recorded using an optical heating stage technique, and the nucleation, growth model and growth rate of iron nuclei under different reduction conditions were discussed. The results show that in the temperature range of 773 -- 1373 K, four kinds of nucleus morphologies and growth models with different characteristics were observed tinder different reduction conditions. Morphology transformation and average growth rate of iron nuclei were found to be closely related to temperature and hydrogen partial pressure.

Keywords: magnetite reduction microstructure morphology

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