

弱磁场下低温中和法制备亚微米非晶态 δ -FeOOH的研究

傅小明*, 钟云波, 任忠鸣, 邓康, 徐匡迪

(上海大学上海市现代冶金与材料制备重点实验室 上海 200072)

收稿日期 2005-11-25 修回日期 2006-4-4 网络版发布日期 2006-11-13 接受日期 2006-7-26

摘要 利用XRD和SEM分别对在弱磁场下通过低温中和法制备的羟基铁氧化物进行相成分和颗粒形貌分析. 试验结果表明: 无磁场下, 产物是由部分球形和部分针状的 α -FeOOH组成. 0.1 T磁场下, 产物是纺锤形的 γ -FeOOH, 但是, 其粒度分布很不均匀. 0.3 T磁场下, 产物是球形的 $\text{Fe}_{1.833}(\text{OH})_{0.5}\text{O}_{0.25}$. 0.5 T磁场下, 产物是100

nm左右的球形的非晶态 δ -FeOOH. $\text{Fe}_{1.833}(\text{OH})_{0.5}\text{O}_{0.25}$ 是无磁场下制备的 α -FeOOH向弱磁场下制备的 δ -

FeOOH转变的中间产物. 并且, 亚微米球形 $\text{Fe}_{1.833}(\text{OH})_{0.5}\text{O}_{0.25}$ 和亚微米非晶态球形 δ -

FeOOH的粒度分布都很均匀. 此外, 弱磁场影响羟基铁氧化物的结晶度.

关键词 [弱磁场](#) [低温中和法](#) [亚微米](#) [非晶态 \$\delta\$ -FeOOH](#)

分类号

Preparation of Sub-micron Amorphous δ -FeOOH by Low-temperature Neutralization Method in Low Magnetic Field

FU Xiao-Ming*, ZHONG Yun-Bo, REN Zhong-Ming, DENG Kang, XU Kuang-Di

(Shanghai Key Laboratory of Modern Metallurgy & Material Processing, Shanghai University, Shanghai 200072)

Abstract Iron oxide hydroxide prepared by low-temperature neutralization reaction in zero and low magnetic field was analyzed with XRD and SEM. The experimental results turned out that spherical and acicular goethite (α -FeOOH) was prepared in zero magnetic field. Spindly lepidocrocite (γ -FeOOH) was prepared in 0.1 T magnetic field. And its grain size distribution was not homogeneous. Sub-micron spherical $\text{Fe}_{1.833}(\text{OH})_{0.5}\text{O}_{0.25}$ was prepared in 0.3 T magnetic field. Sub-micron spherical misawite (δ -FeOOH) of about 100 nm, the crystalline state of which was amorphous, was prepared in 0.5 T magnetic field. $\text{Fe}_{1.833}(\text{OH})_{0.5}\text{O}_{0.25}$ was an intermediate product from goethite (α -FeOOH) prepared in zero magnetic field to misawite (δ -FeOOH) prepared in low magnetic field. And the grain size distribution of sub-micron spherical $\text{Fe}_{1.833}(\text{OH})_{0.5}\text{O}_{0.25}$ and spherical misawite (δ -FeOOH) was homogeneous. Besides, the crystallinity of iron oxide hydroxide (FeOOH) was influenced by low magnetic field greatly.

Key words [low magnetic field](#) [low-temperature neutralization method](#) [sub-micron](#) [amorphous \$\delta\$ -FeOOH](#)

DOI:

通讯作者 傅小明 fxm_2002@etang.com

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(374KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“弱磁场”的
相关文章](#)

▶ [本文作者相关文章](#)

- [傅小明](#)
- [钟云波](#)
- [任忠鸣](#)
- [邓康](#)
- [徐匡迪](#)