

化学化工

氨基硅烷修饰NdFeB永磁微粒的研究

王莉清¹, 张红燕¹, 赵振杰², 王清江¹, 何品刚¹

1.华东师范大学 化学系,上海200062; 2.华东师范大学 物理系,上海200062

收稿日期 2007-12-1 修回日期 2008-2-5 网络版发布日期 2008-6-18 接受日期 2008-3-9

摘要 以3-氨丙基三乙氧基硅烷作为修饰剂,对具有永磁性的NdFeB磁性粒子进行了表面修饰,使之表面带有活性-NH₂基官能团.通过傅立叶红外光谱、差示扫描量热、热重分析、透射电镜以及磁性分析等方法对磁性微粒表面功能团进行表征,证明在选定的实验条件下,达到了理想的表面修饰效果.该法试剂易得,操作简单,结果稳定,可以使氨基化的永磁微粒进行进一步的生物应用.

关键词 [NdFeB磁粉](#); [偶联剂](#); [表面修饰](#)

分类号 [0657.2](#)

Synthesis and characterization of amino-silanemodified NdFeB magnetic particles(Chinese)

WANG Li-qing¹, ZHANG Hong-yan¹, ZHAO Zhen-jie², WANG Qing-jiang¹, HE Pin-gang¹

1.Department of Chemistry, East China Normal University, Shanghai200062, China;2.Department of Physics, East China Normal University, Shanghai200062, China

Abstract

In order to be conjoined with active -NH₂ groups, the surface modification of NdFeB permanent magnetic particles by 3-aminopropyltriethoxysilane (APES) was studied in this paper. The surface functional groups of the modified NdFeB magnetic particles were investigated by FT-IR, DSC-TG, TEM and magnetic hysteresis loop measurements, and the experimental results showed that effective amino-silane modified magnetic particles was obtained under the optimum conditions. The methods reported in this paper have some advantages, such as simple reagents, easy operation and stable property. The APES coated NdFeB magnetic particles could be used for further biological researches.

Key words [NdFeB magnetic particles](#) [Amino-silane](#) [surface modification](#)

DOI:

通讯作者 何品刚 Fghe@Chen.ecnu.edu.cn

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(467KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [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](#)

相关信息

- ▶ [本刊中 包含 “NdFeB磁粉; 偶联剂; 表面修饰” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [王莉清](#)
- [张红燕](#)
- [赵振杰](#)
- [王清江](#)
- [何品刚](#)