化学学报 1999 57 (5): 465-471 ISSN: 0567-7351 CN: 31-1320/06

扩展功能

本文信息

Supporting info

PDF(483KB)

[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“锂”的 相关文章

本文作者相关文章

- 祖革
- 罗维克
- 吴浩青

锂在共轭双键高分子中的电化学嵌入反应**3:** 锂在聚萘中的电 化学嵌入反应

祖革,罗维克,吴浩青

复旦大学化学系.上海(200433)

收稿日期 修回日期 网络版发布日期 接受日期

摘要 研究了锂在导电高聚物---聚萘中的嵌入反应。聚萘样品经650℃处理,作为锂电池的正极,组装成Li/(C~1~0H~6)~n电池。X射线衍射分析、ESR实验、
X射线光电子能谱分析等一系列实验证实上述电池的正板反应是锂在聚萘中的电化学嵌入反应。通过XPS实验对嵌入聚萘的锂进行了价态分析,认为嵌进去的锂是以原子态及离子态两种状态存在,其结合能分别为55.7eV和57.4eV。采用电化学暂态测量技术研究了锂在导电高聚物---聚萘中的扩散,计算了锂在嵌合物中的离子电导率及淌度。用Hebb-Wagner直流极化法测量了嵌合物的电子电导。

关键词 锂 嵌入反应 聚萘 共轭聚合物 X射线衍射分析 电子自旋共振 X射线光电子谱法

分类号 0646

The electrochemical intercalation reaction of lithium in polymer with conjugated double bonds 3: The electrochemical intercalation reaction of lithium in polynaphthalene

Zu Ge,Luo Weike,Wu Haoqing

Fudan Univ, Dept Chem.Shanghai(200433)

Abstract Naphthalene has been polymerized under mild conditions in o- dichlorobenzene with ferric chloride as catalyst. The resulting product polynaphthalene, annealed at 650℃ in vacuo, is a conducting polymer with conjugated double bonds. A mechanism of the electrochemical intercalation reaction is suggested for the discharge of a Li-polynaphthalene battery on the basis of experimental data obtained from the X-ray analysis, the electron paramagnetic resonance spectrometry etc. The lithium exists in the lithiated compound in both atomic and ionic state. The electrochemical intercalation reaction of lithium enhanced ESR absorption of the intercalation compound (Li~xC~1~0H~6)~n has been observed. The diffusion coefficient of Li^+ in the intercalation compound was measured to be 10^-^1^1～10^-^1^3 cm^2.s^-^1 by the potential step method at room temperature. The electronic conductivity was measured by Hebb-Wagner DC polarization technique, which was five to six orders of magnitude larger than the ionic one, so the intercalation compound was a mixed conductor in which the electronic conduction was predominant.

Key words LITHIUM INTERCALATION REACTION X-RAY DIFFRACTION ANALYSIS ELECTRON SPIN RESONANCE X-RAY PHOTOELECTRON SPECTROMETRY

DOI:

通讯作者