

论文

硅铝二元膜包覆稀土发光材料的结构及耐水性能的研究

罗勇悦¹, 彭蕾蕾¹, 淡宜¹, 张立², 赵昆²

1. 高分子材料工程国家重点实验室(四川大学), 四川大学高分子研究所, 成都 610065; 2.

四川新力集团实业有限公司, 成都 610031

收稿日期 2006-6-9 修回日期 2006-8-30 网络版发布日期 2007-4-30 接受日期

摘要 采用溶胶-凝胶法制备硅铝二元膜包覆稀土发光材料. 通过扫描电镜、X光电子能谱、比表面、多晶X射线衍射、荧光光谱和发光亮度的测试, 研究了材料的结构、

包覆层与原始发光材料的相互作用及材料发光性能; 进一步通过pH值测定, 考察了材料的耐水性. 结果表明, 包覆层以无定型态与原始发光材料以化学作用结合, 而不是简单的物理包覆;

在原始发光材料表面包覆一层均匀的硅铝二元膜, 可有效提高材料的耐水性能, 而对材料的发光性能影响不大.

关键词 [稀土发光材料](#) [溶胶-凝胶](#) [包覆](#) [结构](#)

分类号 [TQ422](#)

Structure and Water-resistance of Rare-earth Luminescent Materials Coated with Si and Al

LUO Yong-Yue¹, PENG Lei-Lei¹, DAN Yi¹, ZHANG Li², ZHAO Kun²

1. State Key Laboratory of Polymer Materials Engineering (Sichuan University), Polymer Research Institute of Sichuan University, Chengdu 610065, China; 2. Sichuan Xingli Industrial Group Co. Ltd., Chengdu 610031, China

Abstract The rare-earth luminescent materials coated with Si and Al were prepared by the sol-gel route. The result of FL measurement indicates that the coated sample has the similar luminescent properties to that of the uncoated. The compositions, microstructure, texture and surface morphology of the binary films containing Si and Al elements were investigated by SEM, XRD, BET and XPS. Water-resistance of the coated and uncoated samples was evaluated by measuring the pH of water in which the samples were dispersed. The results show that a thin dense binary film containing Si and Al elements forms on the surface of the sample through chemical interactions, which can enhance the uncoated sample's stability under water-containing conditions.

Key words [rare-earth luminescent materials](#) [sol-gel](#) [coating](#) [structure](#)

DOI:

通讯作者 淡宜 danyichenweiwei@163.com

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(690KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [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“稀土发光材料”的相关文章](#)

▶ 本文作者相关文章

- [罗勇悦](#)
- [彭蕾蕾](#)
- [淡宜](#)
- [张立](#)
- [赵昆](#)