

纳米 TiO₂涂层对 Al₂O₃微滤膜的改性研究

周健儿^{1,2}, 吴建青¹, 汪永清², 梁健², 张小珍², 操瑞北²

1. 华南理工大学, 广州 510641;
2. 景德镇陶瓷学院, 景德镇 333001

收稿日期 2005-6-30 修回日期 2005-9-5 网络版发布日期 接受日期

摘要 以硫酸钛、尿素为主要原料, 采用均相沉淀法对 α -Al₂O₃微滤复合膜进行了纳米TiO₂的涂覆改性, 着重考察了反应温度、反应物浓度与涂覆次数对改性作用的影响. 实验结果表明, 制备的TiO₂

改性涂层光滑致密, 晶粒尺寸为10~15nm, 使改性后的Al₂O₃微滤复合膜水通量提高了19%以上. 用TEM、Zeta电位分析手段对改性涂层进行了测试分析, 探讨了改性的机理.

关键词 [均相沉淀法](#) [微滤膜](#) [氧化钛](#) [改性涂层](#)

分类号 [TB321](#), [TQ174](#)

Modification of Al₂O₃ Microfiltration Membrane by Nano-crystalline TiO₂ Coating

ZHOU Jian-Er^{1,2}, WU Jian-Qing¹, WANG Yong-Qing², LIANG Jian², ZHANG Xiao-Zhen², CAO Rui-Bei²

1. South China University of Technology, Guangzhou 510641, China;
2. Jingdezhen Ceramic Institute, Jingdezhen 333001, China

Abstract For the modification of α -Al₂O₃ microfiltration membrane, the nano-crystalline TiO₂ coating was obtained by a homogeneous precipitation method using titanium sulfate and urea as raw materials. The effects of reaction temperature, reactant concentration and coating times on the modification of the membrane were investigated systematically. The micro-structure of nano-crystalline TiO₂ coating and its modifying mechanism were also studied by means of TEM, Zeta electric potential analyzer etc. The results show that nano-crystalline TiO₂ modifying coating composed of 10~15nm grains is smooth and dense, and the water flux of the modified membrane is increased by more than 19% over the membrane before modification.

Key words [homogeneous precipitation method](#) [microfiltration membrane](#) [titanium oxide](#) [modifying coating](#)

DOI:

通讯作者 周健儿 LP0518@126.com

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(527KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [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“均相沉淀法” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [周健儿](#)
-
- [吴建青](#)
- [汪永清](#)
- [梁健](#)
- [张小珍](#)
- [操瑞北](#)