

材料工程专栏

Synthesis of Nitrogen-doped Titania by Solvothermal Reactions in Alcohols

Tsugio Sato, Yohei Aida, Masakazu Komatsu, 殷澍

日本Tohoku大学

收稿日期 修回日期 网络版发布日期 接受日期

摘要 Nitrogen-doped titania nanoparticles were obtained by the homogeneous precipitation in hexamethylenetetramine- titanium trichloride-alcohol aqueous solutions at 90°C followed by heating at 190°C. Anatase, rutile and brookite were obtained, where the crystallite size, specific surface area and color greatly changed as 5~50 nm, 20~200 m²/g and light gray to yellow, depending on the solvent and pH. The products after calcination were yellow, indicating doping with nitrogen ion. All colored titania showed photocatalytic activity under visible light irradiation for the oxidative decomposition of nitrogen monoxide in air. Especially, the nanoparticles of anatase type nitrogen-doped titania obtained using methanol aqueous solution showed excellent photocatalytic activity.

关键词 [nitrogen-doped titania, solvothermal synthesis, alcohol, photocatalysis, nitrogen monoxide, decomposition](#)

分类号 [工艺](#)

DOI:

对应的英文版文章: [206520](#)

通讯作者:

作者个人主页: Tsugio Sato; Yohei Aida; Masakazu Komatsu; 殷澍

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF \(339KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献\[PDF\]](#)

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](#)
- ▶ [引用本文](#)
- ▶ [Email Alert](#)

相关信息

- ▶ [本刊中 包含 “nitrogen-doped titania, solvothermal synthesis, alcohol, photocatalysis, nitrogen monoxide, decomposition” 的 相 关文章](#)

▶本文作者相关文章

- [Tsugio Sato](#)
- [Yohei Aida](#)
- [Masakazu Komatsu](#)
- [殷澍](#)