

論文 / 著書情報
Article / Book Information

題目(和文)	
Title(English)	Synthesis of Hierarchical TiO ₂ Photocatalyst with Graphene Oxide by Hydrothermal Treatment for Degradation of Dyes and Antibiotics in Wastewater
著者(和文)	NGUYENTHINGOCPHUONG
Author(English)	Thi Ngoc Phuong Nguyen
出典(和文)	学位:博士(工学), 学位授与機関:東京工業大学, 報告番号:甲第9468号, 授与年月日:2014年3月26日, 学位の種別:課程博士, 審査員:日野出 洋文,中崎 清彦,小松 隆之,大川原 真一,宮内 雅浩
Citation(English)	Degree:Doctor (Engineering), Conferring organization: Tokyo Institute of Technology, Report number:甲第9468号, Conferred date:2014/3/26, Degree Type:Course doctor, Examiner:,,,,
学位種別(和文)	博士論文
Category(English)	Doctoral Thesis
種別(和文)	要約
Type(English)	Outline

専攻 : 国際開発工学 専攻
Department of
学生氏名 : Nguyen Thi Ngoc Phuong
Student's Name

申請学位 (専攻分野) : 博士 (Chemical
Academic Degree Requested Doctor of Engineering)

指導教員 (主) : 日野出洋文
Academic Advisor(main)

指導教員 (副) :
Academic Advisor(sub)

要約

Outline

Hierarchical TiO₂ photocatalysts with graphene oxide were synthesized by hydrothermal treatment, and their photocatalytic activity was investigated on the degradation of dyes and antibiotics in wastewater. Two methods were investigated using different titania precursors and different solvent mediums. In the first method, TiO₂ precursor beads which were prepared by a non-hydrolytic reaction were used as titania precursor, and ammonia was a solvent medium. The effect of hydrothermal reactants ratio and treatment temperature on the particle size, morphology and crystal phase was investigated. Titanium chloride and acetone were used for the second method. The effect of graphene oxide presence and treatment temperature on the morphology and crystal structure was also conducted. Photocatalytic degradations of methylene blue, orange II, norfloxacin and ciprofloxacin under UV-visible light were applied using the prepared photocatalysts.