

研究报告

五氯酚在污染沉积物泥浆固液两相中厌氧生物降解

唐全¹; 徐向阳¹; 朱有为²

¹浙江大学环境工程系, 杭州 310029; ²浙江省农业厅农业环保站, 杭州 310004

收稿日期 2004-5-2 修回日期 2005-1-17 网络版发布日期 接受日期

摘要

研究了污染沉积物泥浆液、固两相五氯酚(PCP)厌氧生物降解.结果表明,投加 $10\text{ g}\cdot\text{kg}^{-1}$ 厌氧颗粒污泥,经31 d处理泥浆液、固两相PCP降解率达98.9%,平均降解速率达到 $8.0\text{ mg}\cdot\text{kg}^{-1}\cdot\text{d}^{-1}$,对照处理平均降解速率仅为 $4.4\text{ mg}\cdot\text{kg}^{-1}\cdot\text{d}^{-1}$,颗粒污泥生物强化作用明显.作为泥浆修复过程的调控因子,有机溶剂、共基质和表面活性剂对PCP降解效应不同,投加乙醇,可提高PCP解吸和降解速率,4 d内两相PCP降解速率达到 $54.3\text{ mg}\cdot\text{kg}^{-1}\cdot\text{d}^{-1}$;而投加共基质和非离子表面活性剂乙二醇-丁醚后,液、固两相PCP降解均出现迟滞,两者均不同程度地抑制PCP降解.

关键词 [厌氧降解](#); [颗粒污泥](#); [五氯酚](#); [液固两相](#); [泥浆](#)

分类号

Anaerobic biodegradation of pentachlorophenol (PCP) in solid-liquid phase of contaminated sediment slurry

TANG Quan¹, XU Xiangyang¹, ZHU Youwei²

¹Department of Environmental Engineering, Zhejiang

University, Hangzhou 310029, China; ²Station of Agro-Environmental Management of Zhejiang Province, Hangzhou 310004, China

Abstract

The study showed that after inoculating $10\text{ g}\cdot\text{kg}^{-1}$ anaerobic dechlorinated granular sludge (ADGS) for 31 days, the biodegradation rate of pentachlorophenol (PCP) in solid-liquid phase of contaminated sediment slurry was up to 98.9%, with an average of $8.0\text{ mg}\cdot\text{kg}^{-1}\cdot\text{d}^{-1}$, while that of the control was only $4.4\text{ mg}\cdot\text{kg}^{-1}\cdot\text{d}^{-1}$. As the regulation factors in slurry remediation, organic solvent, co-substrate and surfactant had different effects on PCP degradation. The addition of ethanol could enhance the desorption and degradation of PCP, the degradation rate being up to $54.3\text{ mg}\cdot\text{kg}^{-1}\cdot\text{d}^{-1}$ within 4 days, while the addition of co-substrate and non ionic surfactant EGME (ethylene glycol monobutyl-ether) inhibited the PCP degradation in solid- liquid phase of slurry.

Key words

[Anaerobic degradation](#) [Granular sludge](#) [Pentachlorophenol](#) [Solid-Liquid phase](#) [Slurry](#)

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(412KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [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](#)
“[厌氧降解](#); [颗粒污泥](#); [五氯酚](#); [液固两相](#); [泥浆](#)”
的 [相关文章](#)
- ▶ 本文作者相关文章

- [唐全](#)
- [徐向阳](#)
- [朱有为](#)

DOI:

通讯作者