

Accepted Manuscript

Treatment of Compost Leachate by the Combination of Coagulation and Membrane Process

Zengnian Shu, Yaoping Lü, Jian Huang, Wenhui Zhang

PII: S1004-9541(16)30474-8
DOI: doi: [10.1016/j.cjche.2016.05.022](https://doi.org/10.1016/j.cjche.2016.05.022)
Reference: CJCHE 575

To appear in:

Received date: 4 November 2015
Revised date: 26 April 2016
Accepted date: 11 May 2016

Please cite this article as: Zengnian Shu, Yaoping Lü, Jian Huang, Wenhui Zhang, Treatment of Compost Leachate by the Combination of Coagulation and Membrane Process, (2016), doi: [10.1016/j.cjche.2016.05.022](https://doi.org/10.1016/j.cjche.2016.05.022)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Separation Science and Engineering

Treatment of Compost Leachate by the Combination of Coagulation and Membrane Process*

Zengnian Shu (舒增年)¹, Yaoping Lü (吕耀平)¹, Jian Huang (黄健)^{1,2,**}, Wenhui Zhang (张文辉)³

¹ College of Ecology, Lishui University, Lishui 323000, China

² Institutes of Urban Environment, Chinese Academy of Sciences, Xiamen 361021, China

³ Institute of Engineering and Design, Lishui University, Lishui 323000, China

Abstract This study describes the treatment of composting leachate by the combination of coagulation and nanofiltration process. Poly ferric sulphate (PSF) was used as coagulant, and the effect of pH value and PSF dosage on the coagulation performance was investigated. The results indicated that the chemical oxidation demand (COD) and turbidity removal efficiency could reach to 62.8% and 75.3%, respectively at an optimum dosage of 1200 mg·L⁻¹ at pH 6.0. During the nanofiltration process, the operation conditions such as temperature and pressure were optimized, 89.7% of COD, 78.2% of TOC, 72.5% of TN, 83.2% of TP, and 78.6% of NH₃-N were retained when tested at 0.6 MPa at 25 °C. The final leachate effluent concentration of COD, BOD₅, NH₃-N, TOC, SS was 92 mg·L⁻¹, 31 mg·L⁻¹, 21 mg·L⁻¹, 73 mg·L⁻¹ and 23 mg·L⁻¹, respectively, which reached the local discharge standard. The combination of coagulation-filtration is useful for composting leachate treatment.

Keywords compost leachate, PFS coagulation, nanofiltration

Article history:

Received 4 November 2015

Received in revised form 26 April 2016

Accepted 11 May 2016

Available online xxxx

* Supported by the Zhejiang Provincial Natural Science Foundation of China (LQ14B060001, Y14F030005), Foundation of Science and Technology Department of Zhejiang Province of China (2013C33019, 2015C33232), Science and Technology Project of Lishui City (2015RC23)

** Corresponding author. E-mail address: huangjian@lsu.edu.cn

Download English Version:

<https://daneshyari.com/en/article/4764198>

Download Persian Version:

<https://daneshyari.com/article/4764198>

[Daneshyari.com](https://daneshyari.com)