

Accepted Manuscript

Influence of potassium hydroxide activation on characteristics and environmental risk of heavy metals in chars derived from municipal sewage sludge

Zhengjia Li, Hui Deng, Le Yang, Genlin Zhang, Yuqi Li, Yansen Ren

PII: S0960-8524(18)30187-1

DOI: <https://doi.org/10.1016/j.biortech.2018.02.013>

Reference: BITE 19522

To appear in: *Bioresource Technology*

Received Date: 8 December 2017

Revised Date: 31 January 2018

Accepted Date: 2 February 2018



Please cite this article as: Li, Z., Deng, H., Yang, L., Zhang, G., Li, Y., Ren, Y., Influence of potassium hydroxide activation on characteristics and environmental risk of heavy metals in chars derived from municipal sewage sludge, *Bioresource Technology* (2018), doi: <https://doi.org/10.1016/j.biortech.2018.02.013>

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.

Influence of potassium hydroxide activation on characteristics and environmental risk of heavy metals in chars derived from municipal sewage sludge

Zhengjia Li^a, Hui Deng^{a*}, Le Yang^b, Genlin Zhang^a, Yuqi Li^a, Yansen Ren^a

^a Key Laboratory for Green Processing of Chemical Engineering of Xinjiang Bingtuan, School of Chemistry and Chemical Engineering, Shihezi University, Shihezi, 832003, Xinjiang, China

^b Agricultural School, Shihezi University, Shihezi, 832003, Xinjiang, China

* Corresponding author: huid@163.com (Hui Deng) Tel: +86-09932055015

ABSTRACT:

To investigate the influence of KOH activation on characteristics and environmental risk of heavy metals in chars, sludge was pyrolyzed with varying amount of KOH. The analyzation of characteristics and potential ecological risk evaluation of heavy metals were conducted by surface area analyzer, FTIR, XRD and BCR sequential extraction. The activated chars have higher surface area and lower content of silica compared to those without being activated. The activation of KOH promoted residual fraction of Cd, meanwhile, Zinc, Cr, Ni and Mn were converted to relatively unstable fractions (F2 and F3). The results of risk assessment indicated that the potential ecological risk level of Cd was reduced in activated chars, while risk level of Zn, Cr, Ni and Mn were increased after pyrolysis with KOH activation. The potential ecological

Download English Version:

<https://daneshyari.com/en/article/7067813>

Download Persian Version:

<https://daneshyari.com/article/7067813>

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