

Accepted Manuscript

Title: High efficient treatment of the petrochemical phenolic effluent using spent catalyst: Experimental and Optimization

Authors: Mahsa Vosoughi, Esmail Fatehifar, Siavash Derafshi, Mohammad Rostamizadeh



PII: S2213-3437(17)30139-2
DOI: <http://dx.doi.org/doi:10.1016/j.jece.2017.04.003>
Reference: JECE 1552

To appear in:

Received date: 12-2-2017
Revised date: 30-3-2017
Accepted date: 1-4-2017

Please cite this article as: Mahsa Vosoughi, Esmail Fatehifar, Siavash Derafshi, Mohammad Rostamizadeh, High efficient treatment of the petrochemical phenolic effluent using spent catalyst: Experimental and Optimization, Journal of Environmental Chemical Engineering <http://dx.doi.org/10.1016/j.jece.2017.04.003>

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.

High efficient treatment of the petrochemical phenolic effluent using spent catalyst:

Experimental and Optimization

Mahsa Vosoughi¹, Esmail Fatehifar¹, Siavash Derafshi², Mohammad Rostamizadeh^{1*}

¹Environmental Engineering Research Center, Faculty of Chemical Engineering, Sahand University of Technology, Tabriz, Iran

²HSE Department, Tabriz Petrochemical Company, Tabriz, Iran

*Corresponding author. Tel: +98 4133459147, fax: +98 4133459152
Email address: Rostamizadeh@sut.ac.ir (M. Rostamizadeh)

Highlights

- Spent catalyst was applied in Fenton-like process.
- The catalyst showed high efficiency in phenol oxidation.
- Phenol concentration level in petrochemical effluent was reduced remarkably.
- Fenton-like effective parameters were optimized to access maximum phenol removal efficiency.

Abstract

Phenol is one of the dangerous volatile organic compounds (VOCs) which presents in almost every petrochemical plant's effluent. In this study, we regenerated spent catalyst of petrochemical styrene unit and applied to remove phenol from an industrial phenolic effluent in Fenton-like process. The catalyst was characterized using SEM, XRD, N₂ adsorption-desorption, EDX and XRF techniques. Effects of four important variables including H₂O₂ concentration, catalyst

Download English Version:

<https://daneshyari.com/en/article/4908542>

Download Persian Version:

<https://daneshyari.com/article/4908542>

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