

Accepted Manuscript

Review

A review on heterogeneous sonocatalyst for treatment of organic pollutants in aqueous phase based on catalytic mechanism

Pengpeng Qiu, Beomguk Park, Jongbok Choi, Binota Thokchom, Aniruddha B. Pandit, Jeehyeong Khim

PII: S1350-4177(18)30356-0

DOI: <https://doi.org/10.1016/j.ultsonch.2018.03.003>

Reference: ULTSON 4115

To appear in: *Ultrasonics Sonochemistry*

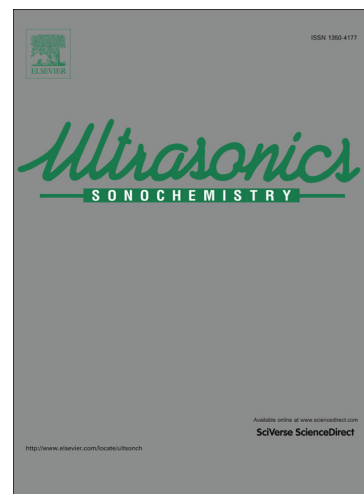
Received Date: 14 November 2017

Revised Date: 3 March 2018

Accepted Date: 3 March 2018

Please cite this article as: P. Qiu, B. Park, J. Choi, B. Thokchom, A.B. Pandit, J. Khim, A review on heterogeneous sonocatalyst for treatment of organic pollutants in aqueous phase based on catalytic mechanism, *Ultrasonics Sonochemistry* (2018), doi: <https://doi.org/10.1016/j.ultsonch.2018.03.003>

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.



A review on heterogeneous sonocatalyst for treatment of organic pollutants in aqueous phase based on catalytic mechanism

Pengpeng Qiu^a, Beomguk Park^a, Jongbok Choi^a, Binota Thokchom^b, Aniruddha B. Pandit^c and Jeehyeong Khim^{a*}

^a *School of Civil, Environmental and Architectural Engineering, Korea University, Seoul 136-701, Republic of Korea*

^b *Indian Institute of Technology Guwahati, Guwahati 781039, India*

^c *Department of Chemical Engineering, Institute of Chemical Technology, Mumbai 40019, India*

E-mail: hyeong@korea.ac.kr

Abstract

Heterogeneous sonocatalysis, as an emerging advanced oxidation process (AOP), has shown immense potential in water treatment and been widely demonstrated to remove persistent organic compounds in the past decade. The present article aims to provide a comprehensive review on the development of a heterogeneous catalyst for enhancing the ultrasonic degradation rate of organic pollutants from a viewpoint of sonocatalytic mechanism. The rational design and fundamentals for preparing sonocatalysts are presented in the context of facilitating the heterogeneous nucleation and photo-thermal-catalytic effects as well as considering the mechanical stability and separation capacity of the heterogeneous catalyst. In addition, some new trends, ongoing challenges and possible methods to overcome these challenges are also highlighted and proposed.

Keywords: Sonocatalysis, organic pollutant, sonocatalytic mechanism, heterogeneous nucleation, photo-thermal-catalytic effect.

Download English Version:

<https://daneshyari.com/en/article/7702411>

Download Persian Version:

<https://daneshyari.com/article/7702411>

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