Title: Extending surfactant-modified 2:1 clay minerals for the uptake and removal of diclofenac from water

Author: Ken Sun Yan Shi Honghan Chen Xiaoyu Wang Zhaohui Li

PII: S0304-3894(16)30469-1
DOI: http://dx.doi.org/doi:10.1016/j.jhazmat.2016.05.038
Reference: HAZMAT 17727

To appear in: *Journal of Hazardous Materials*

Received date: 3-3-2016
Revised date: 20-4-2016
Accepted date: 11-5-2016

Please cite this article as: Ken Sun, Yan Shi, Honghan Chen, Xiaoyu Wang, Zhaohui Li, Extending surfactant-modified 2:1 clay minerals for the uptake and removal of diclofenac from water, Journal of Hazardous Materials http://dx.doi.org/10.1016/j.jhazmat.2016.05.038

Extending surfactant-modified 2:1 clay minerals for the uptake and removal of diclofenac from water

Ken Sun[a,b], Yan Shi[a], Honghan Chen[b,*], Xiaoyu Wang[c], Zhaohui Li[c,d,*]

[a]School of Environmental and Municipal Engineering, North China University of Water Resources and Electric Power, Zhengzhou 450045,China

[b]School of Water Resources and Environment, China University of Geosciences, Beijing 100083, China

[c]School of Materials Science and Technology, China University of Geosciences, Beijing 100083, China

[d]Geosciences Department, University of Wisconsin–Parkside, Kenosha, WI 53144, USA

Highlights:

- Illite and montmorillonite modified by a cationic surfactant.
- Modification resulted in significant uptake of diclofenac (DC) upto 1 mmol/g.
- Specific surface area and the anion exchange not limiting factors for DC uptake.
- Partitioning into the hemimicelles and admicelles responsible for DC uptake.
- Results would extend application of modified clays for removal of anionic drugs.

Abstract

The presence and persistency of pharmaceuticals and personal care products

* Corresponding author: Tel: 1-262-595-2487; Fax: 1-262-595-2056; Email: li@uwp.edu