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**Sulfide Removal and Sulfur Production in a Membrane Aerated Biofilm Reactor:
Model Evaluation**

Jing Sun¹, Xiaohu Dai¹, Yiwen Liu², Lai Peng³, Bing-Jie Ni^{1,*}

¹State Key Laboratory of Pollution Control and Resources Reuse, College of
Environmental Science and Engineering, Tongji University, Shanghai 200092, PR
China

²Centre for Technology in Water and Wastewater, School of Civil and Environmental
Engineering, University of Technology Sydney, Sydney, NSW 2007, Australia

³Laboratory of Microbial Ecology and Technology (LabMET), Ghent University,
Coupure Links 653, 9000 Ghent, Belgium

***Corresponding author:**

Bing-Jie Ni, P: +86 21 65986849; F: +86 21 65983602; E-mail: bjni@tongji.edu.cn

Abstract

Sulfide removal from wastewater is essential, in view of the toxic, malodor and corrosive property of sulfide. The oxidation of sulfide by chemolithotrophic sulfide oxidation bacteria can produce elemental sulfur, an important chemical material. A membrane aerated biofilm reactor (MABR) has been successfully implemented and demonstrated for enhanced sulfide oxidation and sulfur production, owing to its counter-diffusion design of oxygen supply. In this work, a mathematical model was developed to evaluate the sulfide oxidation and sulfur production in the MABR in the presence of residual organics in the influent. The model was calibrated and validated using the experimental data from the long-term operation of the sulfide-oxidation

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