

7th World Convention on

WASTE RECYCLING AND REUSE

May 16-17, 2018 Tokyo, Japan

Applications of reverse osmosis for the removal of organic compounds from wastewater: Modeling, simulation and optimization

Iqbal M Mujtaba¹, M A Al-Obaidi^{1, 2} and C Kara-Zaitri¹University of Bradford, UK²Middle Technical University, Iraq

This paper presents a state-of-the-art on distributed models and associated performances of the most recent wastewater treatment methods based on the reverse osmosis (RO) process for the removal of high toxicological organic compounds from wastewater. The review begins with a discussion of key challenges for the removal of such harmful compounds. It provides a comprehensive critique on various models considering the impact of variable operating conditions and membrane dimensions and configurations, which are all aimed at improving performance on one hand and reducing cost on the other. Whilst the review readily shows major RO successes in this aspect of work, it nevertheless highlights the continuing challenge of completely removing many toxic compounds from wastewater. The abilities and indeed possibilities of the RO process for removing several toxic compounds are yet to be fully explored or realized with many opportunities and challenges for optimizing the underlying operating conditions, superstructure and membrane synthesis.

I.M.Mujtaba@bradford.ac.uk