



*“Gheorghe Asachi” Technical University of Iasi, Romania*



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## MEMBRANE WETTING IN CARBON DIOXIDE ABSORPTION PROCESS USING MEMBRANE CONTACTORS: A REVIEW

Abdul Latif Ahmad<sup>1\*</sup>, Harith Noori Mohammed<sup>1,2</sup>, Ooi Boon Seng<sup>1</sup>, Leo Choe Peng<sup>1</sup>

<sup>1</sup>*School of Chemical Engineering, Engineering Campus, University Sains Malaysia,  
14300 Nibong Tebal, Pulau Pinang, Malaysia*

<sup>2</sup>*Chemical Engineering Department, Tikrit University, Salahdin, Iraq*

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### Abstract

Porous membranes as gas-liquid contactors are widely used in carbon dioxide (CO<sub>2</sub>) absorption systems. It provides larger mass transfer area and excellent operational flexibility. Membrane contactors have been considered as alternative to conventional approaches in removing CO<sub>2</sub>. In spite of its advantages over conventional technologies, membrane wetting is a major problem which reduces performance of CO<sub>2</sub> absorption. This paper explains the concept of membrane wetting phenomenon and its influence on the CO<sub>2</sub> mass transfer through the membrane and absorption performance. The factors that cause membrane wetting were presented including hydrophobicity of membranes surfaces, membrane pore size, liquid entry pressure and properties of absorbent liquid. Current proposed methods to alleviate the membrane wetting were reviewed and discussed. Development of mathematical model was presented for all types of membrane wetting modes, as well as its validity for CO<sub>2</sub> physical and chemical absorption.

*Key words:* CO<sub>2</sub> removal, greenhouse gases, gas absorption, membrane wetting

*Received: December, 2013; Revised final: July, 2014; Accepted: July, 2014; Published in final edited form: March 2017*

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\* Author to whom all correspondence should be addressed: e-mail: [chlatif@usm.my](mailto:chlatif@usm.my); Phone.: +60 4 594 1012; Fax: +60 4 594 1013