

Accepted Manuscript

Superhydrophobic Modification of Ceramic Membranes for Vacuum Membrane Distillation

Yanhui Yang, Qianqian Liu, Haizhi Wang, Fusheng Ding, Guoshan Jin, Chunxi Li, Hong Meng

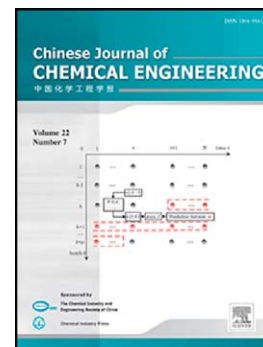
PII: S1004-9541(16)31432-X
DOI: doi:[10.1016/j.cjche.2017.05.003](https://doi.org/10.1016/j.cjche.2017.05.003)
Reference: CJCHE 824

To appear in:

Received date: 27 December 2016
Revised date: 16 May 2017
Accepted date: 16 May 2017

Please cite this article as: Yanhui Yang, Qianqian Liu, Haizhi Wang, Fusheng Ding, Guoshan Jin, Chunxi Li, Hong Meng, Superhydrophobic Modification of Ceramic Membranes for Vacuum Membrane Distillation, (2017), doi:[10.1016/j.cjche.2017.05.003](https://doi.org/10.1016/j.cjche.2017.05.003)

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.



Superhydrophobic Modification of Ceramic Membranes for Vacuum Membrane Distillation[☆]

Yanhui Yang, Qianqian Liu, Haizhi Wang, Fusheng Ding, Guoshan Jin, Chunxi Li,

Hong Meng^{1}*

*College of Chemical Engineering, Beijing University of Chemical Technology, Beijing
100029, China*

Abstract: The hydrophobically modified ceramic membranes have great potential for energy-efficient membrane distillation. In this work, flat-sheet ceramic membranes with a superhydrophobic surface were fabricated by grafting 1*H*,1*H*,2*H*,2*H*-perfluorooctyltrichlorosilane or 1*H*,1*H*,2*H*,2*H*-perfluorodecyltriethoxysilane and followed by ultraviolet irradiation. The surface water contact angle was improved from 46° of original ceramic membrane to 159°, which exhibited a stable and excellent superhydrophobic effect. The modified membranes showed a high flux of 27.28 kg·m⁻²·h⁻¹ and simultaneously maintained an excellent retention rate of 99.99%, when used in vacuum membrane distillation process for treatment of a 1 wt% NaCl (75°C) aqueous solution. This results suggested that superhydrophobic modification of ceramic surface is a facile

[☆] Supported by the National Natural Science Foundation of China (51473013).

* Corresponding author: menghong@mail.buct.edu.cn (H. Meng), Fax: 86-10-64410308.

Download English Version:

<https://daneshyari.com/en/article/6593290>

Download Persian Version:

<https://daneshyari.com/article/6593290>

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