

Electronic Supplementary Information (ESI)

Self-converted Fabrication of Ni-MOF-74 Tubular Membrane from Nickel-based Nanosheets for Butanol Dehydration by Pervaporation

Guoshu Gao¹, Yumeng Zhao¹, Peng Zhu¹, Haiou Liu¹, Yu Guo^{2*}, Xiongfud Zhang^{1*}

¹*School of Chemical Engineering, Dalian Key Laboratory of Membrane Materials and Membrane Processes, Dalian University of Technology, Dalian, 116024, China.*

²*School of Chemical and Environmental Engineering, Liaoning University of Technology, Jinzhou, 121001, PR China*

Corresponding author: xfzhang@dlut.edu.cn (X. Zhang); guoyulnut@163.com (Y. Guo)

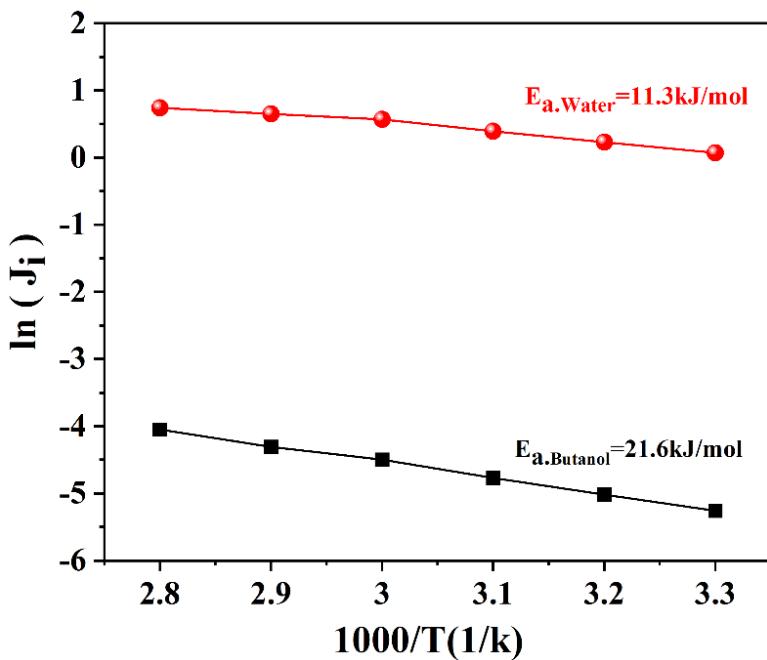


Fig. S1. Arrhenius relationship between water and n-butanol flux and feed temperature for Ni-MOF-74 membrane

Table S1 The n-butanol/water pervaporation performance of Ni-MOF-74 membrane.

Membranes	Flux ($\text{kg}\cdot\text{m}^{-2} \text{ h}^{-1}$)	Separation factor	Ref.
Zif-8 membrane	1.45	36.4	¹
Zn (BDC)(TED) _{0.5} membrane	0.57	440	²
ZIF-8@Ppy membrane	0.56	70.2	¹
Silicalite-1 membrane	1.51	150	³
Graphene oxide membranes	3.1	230	⁴
Ceramic membrane	0.4	1340	⁵
PDMS/ceramic membrane	0.51	24.7	⁶
PDMS/PVDF membrane	2.2	46	⁷
PIM-1/PDMS membrane	1.43	30.7	⁸
NU-906 membrane	0.098	2852	⁹
NU-906 thin film	1.45	2630	⁹
Ni-MOF-74 membrane	1.75	1093	This Work

References

1. L. H. Xu, S. H. Li, H. Mao, A. S. Zhang, W. W. Cai, T. Wang, Z. P. Zhao, *J. Mater. Chem. A.*, 2021, **9**, 11853-11862.
2. S. N. Liu, G. P. Liu, J. Shen, W. Q. Jin, *Sep. Purif. Technol.*, 2014, **133**, 40-47.
3. D. Shen, W. Xiao, J. H. Yang, N. B. Chu, J. M. Lu, D. H. Yin, J. Q. Wang, *Sep. Purif. Technol.*, 2011, **76**, 308-315.
4. L. Chen, G. P. Zhang, H. Y. Fan, *Chin. J. Chem. Eng.*, 2015, **23**, 1102-1109.
5. A. W. Verkerk, M. A. G. Vorstman, *Sep. Purif. Technol.*, 2001, **22**, 689-695.
6. H. P. Zhu, G. P. Liu, J. W. Yuan, T. P. Chen, F. X. Xin, M. Jiang, Y. Q. Fan, W. Q. Jin, *Sep. Purif. Technol.*, 2019, **229**, 115811-115820.
7. Y. Pan, X. Zhao, G. Liu, W. Jin, Y. T. Hang, X. H. Zhao, G. P. Liu, W. Q. Jin., *J. Membr. Sci.*, 2019, **579**, 210-218.
8. G. L. Zhang, H. F. Cheng, P. C. Su, X. Zhang, J. H. Zheng, Y. H. Lu, Q. L. Liu, *Sep. Purif. Technol.*, 2019, **216**, 83-91.
9. R. Luo, Y. Li, Q. Xing, G. Liang, P. Bai, J. L. Guo, M. Tsapatsi, *Adv. Funct. Mater.*, 2023, **2213221**, 1-10.