

## ***A study on fabrication of PVDF-HFP/PTFE blend membranes with controllable and bicontinuous structure for highly effective water-in-oil emulsions separation***

Xinya Wang <sup>a,b</sup>, Changfa Xiao <sup>a,b,1</sup>, Hailiang Liu <sup>a,b</sup>, Mingxing Chen <sup>a,b</sup>, Junqiang Hao <sup>a,c</sup>, Yanjie Wu <sup>a,c</sup>

<sup>a</sup> State Key Laboratory of Separation Membranes and Membrane Processes, Tianjin Polytechnic University, No. 399, Binshui Road, Xiqing District, Tianjin, 300387, P. R. China.

<sup>b</sup> School of Material Science and Engineering, Tianjin Polytechnic University, No. 399, Binshui Road, Xiqing District, Tianjin 300387, P. R. China.

<sup>c</sup> School of Textiles, Tianjin Polytechnic University, No. 399, Binshui Road, Xiqing District, Tianjin 300387, P. R. China.

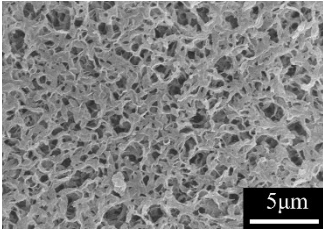
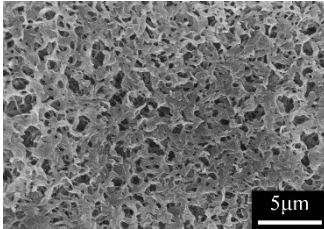
### ***Supporting Information***

#### ***Chemical Corrosion Tests***

Membranes are usually applied in harsh environmental conditions, so corrosion tests in strong chemical reagents are necessary to characterize their applicability. In this study, the samples were immersed in NaOH (10 g L<sup>-1</sup>) aqueous solutions for 15 days. After treatment, the membranes were cleaned with pure water, and changes in the membranes were investigated using tests of SEM, mechanical properties and separation performance.

#### ***Results***

Table S1 The comparison of surface structure and properties of M-E3 before and after immersion in NaOH solution.

Membrane	before immersion	after immersion
Surface structure		
Breaking strength(Mpa)	1.02±0.93	0.99±0.84
Water contact angle(°)	136.8±1.6	134.4±1.2

<sup>1</sup> Corresponding author. E-mail: [xiaochangfa@163.com](mailto:xiaochangfa@163.com); Tel: +086 022 83955299