membranes

Supplementary Materials: Effects of the Substrate on Interfacial Polymerization: Tuning the Hydrophobicity via Polyelectrolyte Deposition

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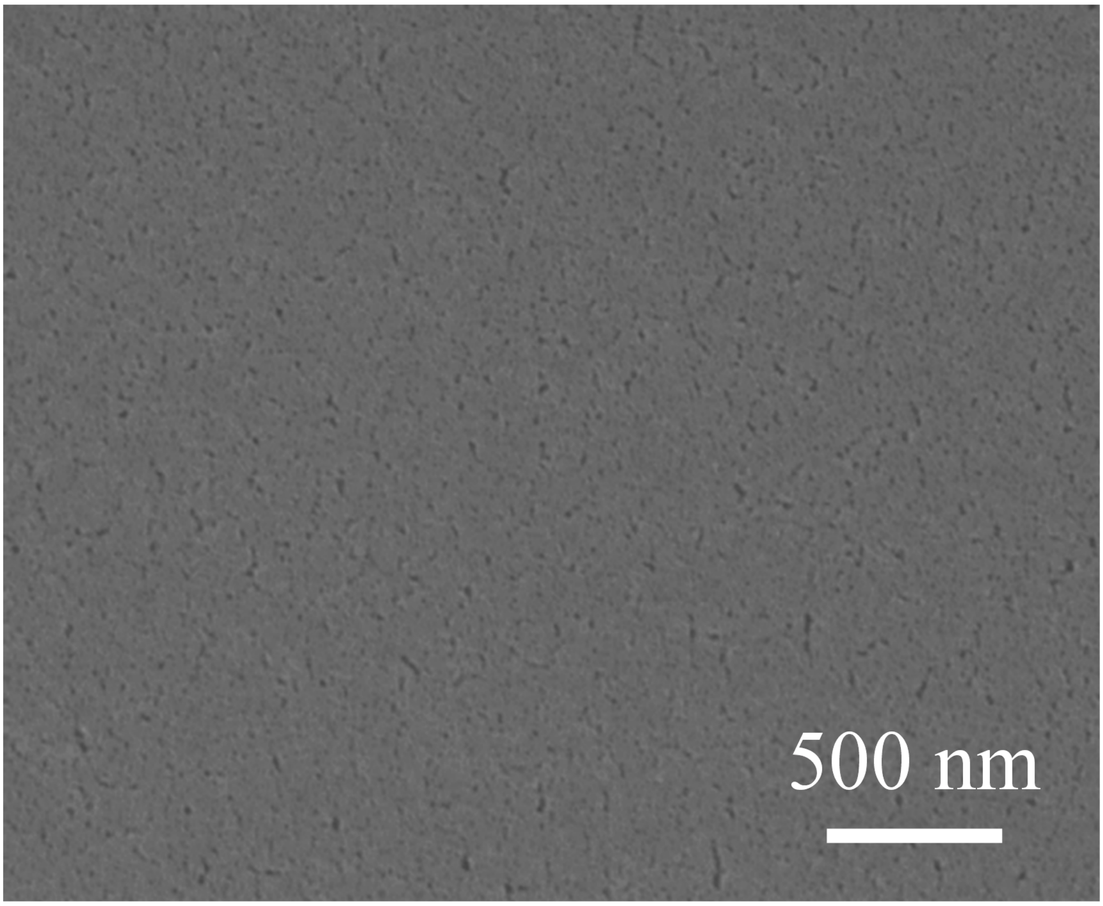
Table S1. Recent studies (form 2018 to 2020) of TFC membranes fabricated based on PAN substrates via IP.

TFC Membranes	Fabrication Conditions	Water Permeability	NaCl Rejection	Reference
TFC-PAN	nanofibrous PAN substrate MPD and TMC for IP	N.A.	0 (intact PA layer)	Peng L. E. *et al*.[1]
NF-1	PAN substrate PIP and TMC for IP	41.8 LMH @ 10 bar	44%	Polisetti V. *et al*.[2]
NF-2	PAN substrate PIP and TMC for IP with 0.01% PSS	69 LMH @ 10 bar	40%	
NF-3	PAN substrate PIP and TMC for IP with 0.1% PSS	90 LMH @ 10 bar	35%	
NF-4	PAN substrate PIP and TMC for IP with 0.5% PSS	203 LMH @ 10 bar	~30%	
PA20/PAN TFNC	PAN substrate PIP and TMC for IP with 1% TEA and 20% NaCl	~185 LMH @ 5 bar	26%	Shen K. *et al*.[3]
TFC-10%	hydrolyzed double-skinned PAN (10%) substrate MPD and TMC for IP	1.99 LMH/bar	87.9%	He M. *et al*.[4]
TFC-s	single-skinned PAN substrate MPD and TMC for IP	1.44 LMH/bar	84.7%	
PIP-Z/PAN	PAN substrate PIP and TMC for IP PEI-SBMA coating	8.6 LMH/bar	64.5%	Chiao Y.-H. *et al*.[5]
ICIC/ZnO/HBPA membrane	PAN substrate ICIC and HBPA for IP with ZnO NPs	53 LMH @ 6 bar	60.8%	Zhang X. *et al*.[6]
PA/PAN	PAN substrate PIP and TMC for IP	~120 LMH @10 bar	~17%	Wu M. *et al*.[7]

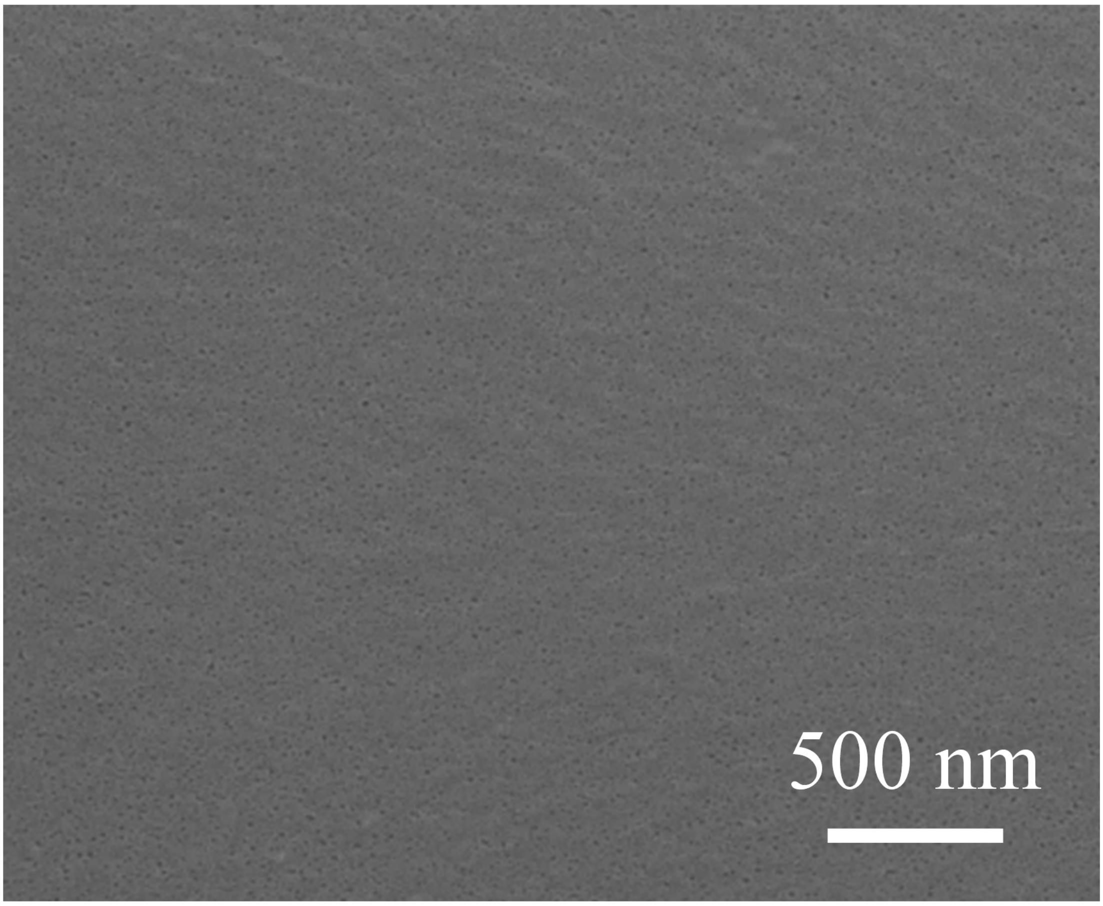
PA/PDA/PAN	PAN substrate PIP and TMC for IP with PDA interlayer	~163 LMH @10 bar	~15%	
PA/PDA-COF(3)/PAN	PAN substrate PIP and TMC for IP with PDA-COF interlayer	~207 LMH @10 bar	~20%	
TFC	PAN substrate PIP and TMC for IP	6.89 LMH/bar	~28-44%	Liu H. *et al.*[8]
TFN-0.05	PAN substrate PIP and TMC for IP with 0.05% UiO-66-NH2	12.68 LMH/bar	~35-40%	
TFN-0.1	PAN substrate PIP and TMC for IP with 0.10% UiO-66-NH2	14.55 LMH/bar	~34-38%	
TFN-0.15	PAN substrate PIP and TMC for IP with 0.15% UiO-66-NH2	13.13 LMH/bar	~30-35%	
HNT/PA NF	PAN substrate DETA and TMC for IP with HNT	14.5 LMH @ 6 bar	62.8%	Yan L. *et al.*[9]
TFC-TIP	PAN substrate MPD and TMC for IP TMC in different organic solvents	3.26 LMH/bar	98.1%	Kwon H. *et al.*[10]
TFC-HIP	PAN substrate MPD and TMC for IP TMC in toluene	0.79 LMH/bar	94.5%	
HTI-TFC	commercial HTI-TFC	1.48 LMH/bar	94.5%	
TFC-CS-PAN-1	PAN nanofibers CS-GA modification MPD and TMC for IP	6.4 LMH/bar	46.5%	Chi X.-Y. *et al.* [11]
TFC-CS-PAN-2	PAN nanofibers CS-GA modification MPD and TMC for IP	4.2 LMH/bar	59.9%	
TFC-CS-PAN-3	PAN nanofibers CS-GA modification MPD and TMC for IP	2.8 LMH/bar	66.0%	
TFC-CS-PAN-4	PAN nanofibers CS-GA modification MPD and TMC for IP	1.6 LMH/bar	83.5%	
TFC	PAN substrate PIP and TMC for IP	106 LMH @ 13 bar	25 %	Esmaeili M. *et al.*[12]
SW30HR	commercial SW30HR	1.78×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	97.5%	Li M. *et al.*[13]
TFN-H	commercial PAN membrane as substrate MPD and TMC for IP surface modified imogolite nanotubes with n-hexane	1.47×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	95.2%	
TFN-H1		1.92×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	96.1%	
TFN-H2		2.24×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	96.4%	
TFN-H3		2.61×10^{-12}	96.1%	

		$m \cdot Pa^{-1} \cdot s^{-1}$	
TFN-H4		2.24×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	96.8%
TFN-H5		2.91×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	96.8%
TFN-H6		3.53×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	96.3%
TFN-C	commercial PAN membrane as substrate	1.10×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	13.6%
TFN-C1	MPD and TMC for IP	2.01×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	13.3%
TFN-C2	surface modified imogolite nanotubes with chloroform	3.39×10^{-12} $m \cdot Pa^{-1} \cdot s^{-1}$	17.2%

(a)



(b)



(c)

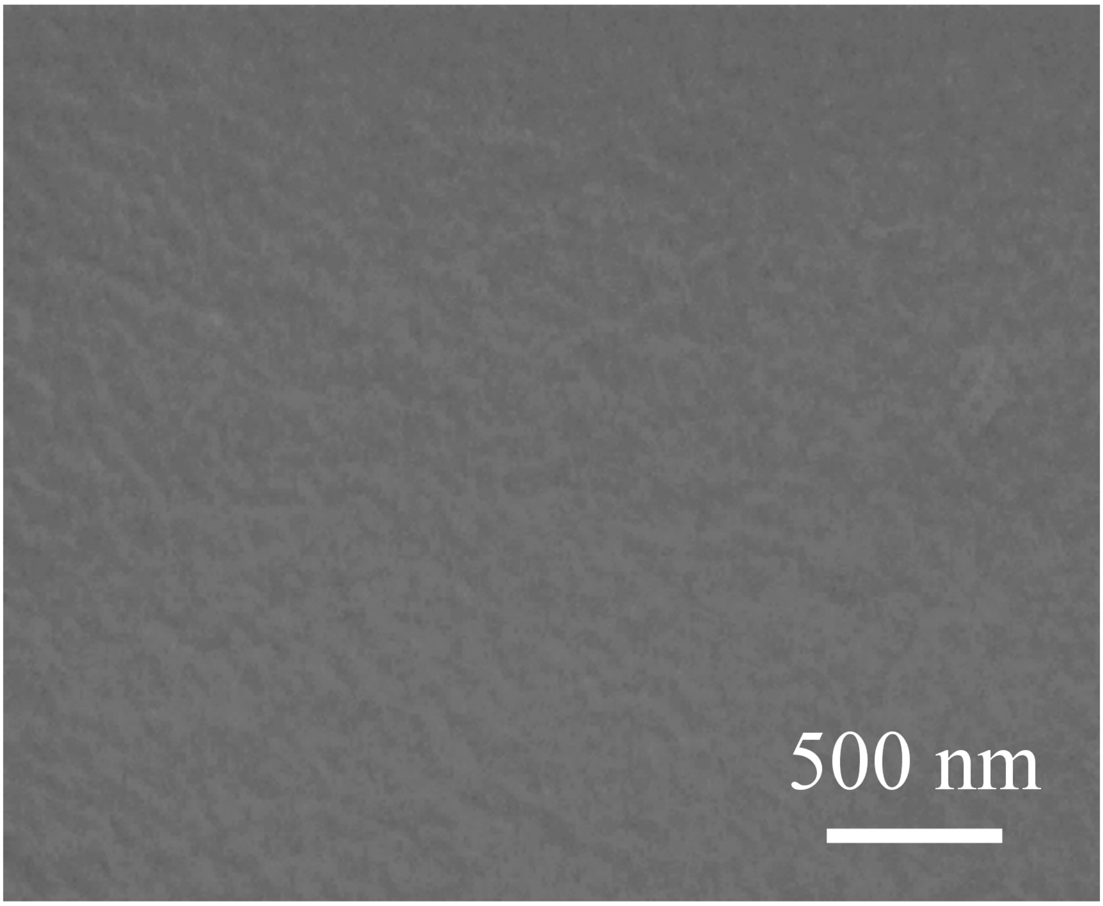


Figure 1. Enlarged SEM images of the original PAN substrate and the PAN substrates with the heat treatment and alkaline treatment; (**a**) The enlarged SEM image of the original PAN substrate (i.e., PAN-O); (**b**) The enlarged SEM image of the PAN substrate with the heat treatment (i.e., PAN-H); (**c**) The enlarged SEM image of the PAN substrate with the alkaline treatment (i.e., PAN-A).

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