

*Supporting Information*

# **Novel thin film nanocomposite forward osmosis membranes prepared by organic phase controlled interfacial polymerization with functional multi-walled carbon nanotubes**

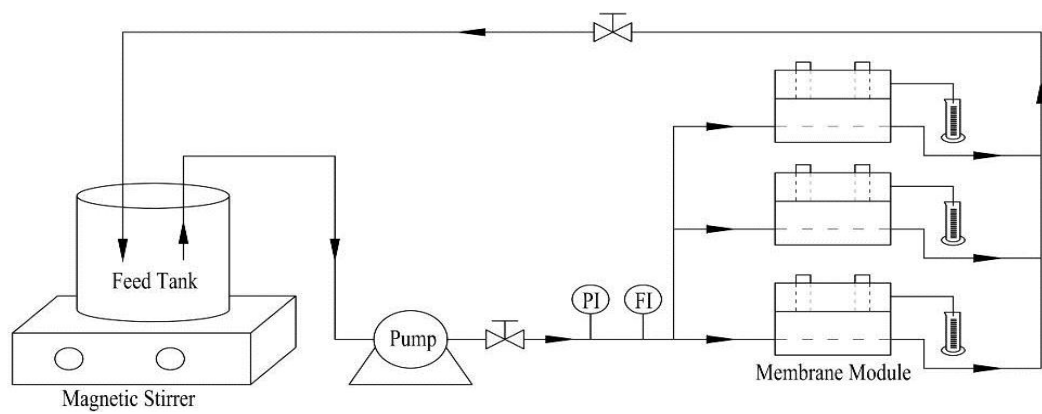
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**Figure S1. Schematic diagram of cross-flow RO system.**

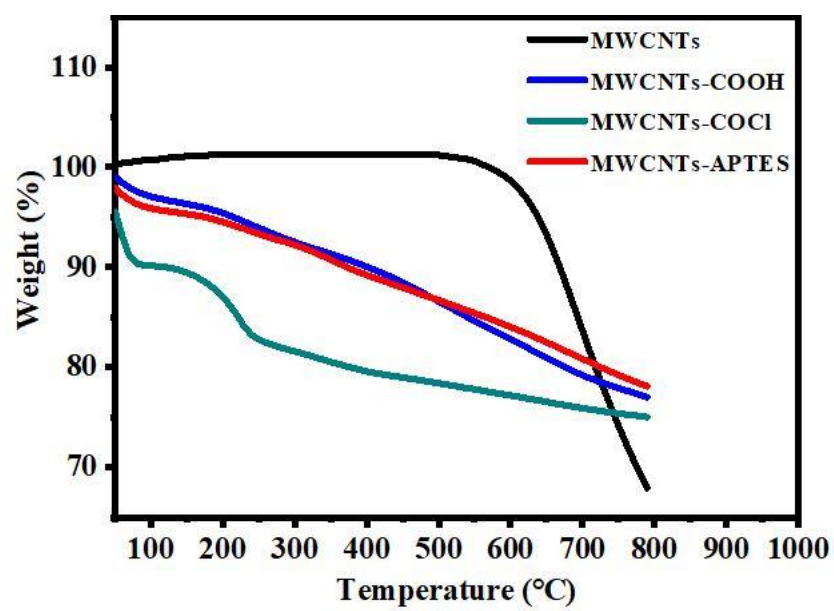
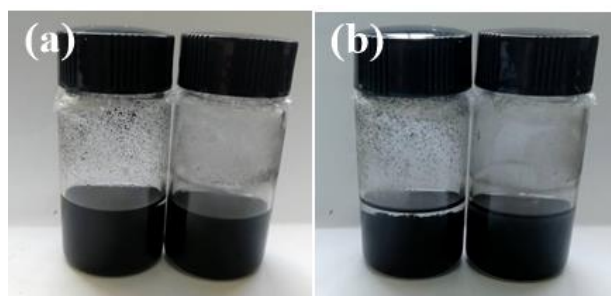


Figure S2. TGA curves of MWCNTs, MWCNTs-COOH, MWCNTs-COCl and MWCNTs-APTES.



**Figure S3.** Optical photographs of MWCNTs and MWCNTs-APTES dispersion after keeping static for **(a)** 0 second and **(b)** 10 min. (left: MWCNTs, right: MWCNTs-APTES).

**Table S1.** Performance of TFN membrane compared with other CNTs-based FO membranes using DI water as feed solution.

Membrane	Draw solution	Membrane Orientation	$J_w$ (LMH)	$J_s$ (gMH)	$J_s/J_w$ (g/L)	Ref
TFN-aCN/AP	1 M NaCl	AL-FS	46.0	1.2	0.026	S1
M-T/CNT/PA	1 M NaCl	AL-DS	28.48	7.4	0.26	S2
		AL-FS	~18	~4.8	~0.27	
PET30-mCNT-HPAN30	1 M NaCl	AL-DS	43.5	11.1	0.255	S3
		AL-FS	29.0	9.4	0.32	
PVDF/SiO <sub>2</sub> @MWNTs	1 M NaCl	AL-FS	22.1	4.1	0.19	S4
TFC						
TFN/SCNTs	1 M NaCl	AL-FS	29.9	~3.5	0.12	S5
TFC-CNT	2 M NaCl	AL-DS	31	6.2	0.2	S6
TFC MMM	0.6 M NaCl	ALFS	11.98	7.7	0.64	S7
0.5MWfT/M-P	1 M NaCl	ALFS	12.7	5.8	0.46	S8
Car-PES TFC	2 M NaCl	AL-DS	25.8	12.3	0.476	S9
		AL-FS	16.1	8.0	0.496	
TFN	1 M NaCl	ALDS	22.2	2.6	0.117	This
		AL-FS	19.6	1.7	0.091	work

## Supplementary References

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