

*Supporting Materials for*

**A High Flux Ultrafiltration Membrane with Multi-hydrophilic Particles Winding and Controlled Self-assembly of Micellar Particles**

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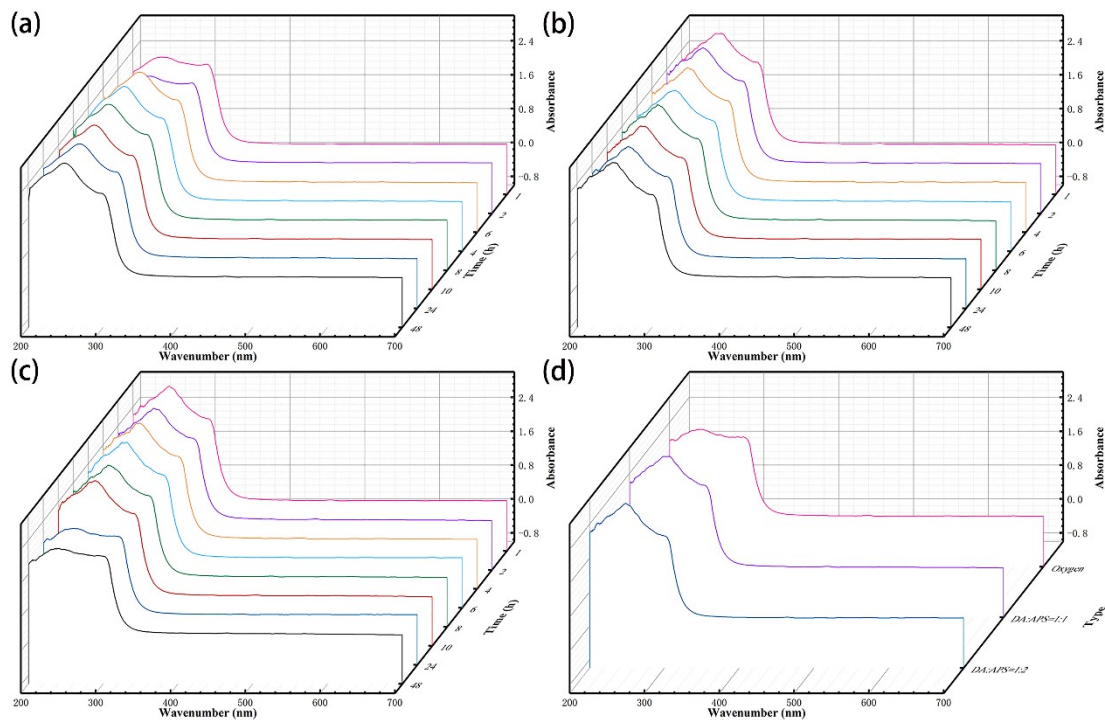
**Table S1.** *The formula composition of 407 blend casting solution with different addition amounts of M-PES-407 membrane.*

Samples	PES (g)	PVP k85 (g)	DMAc (mL)	Additives 407 (g)
<b>1</b>	1.6	0.1	8.2	0.1
<b>2</b>	1.5	0.1	8.2	0.2
<b>3</b>	1.4	0.1	8.2	0.3
<b>4</b>	1.35	0.1	8.2	0.35
<b>5</b>	1.3	0.1	8.2	0.4
<b>6</b>	1.25	0.1	8.2	0.45

**Table S2.** *The surface roughness of M-PES-407, M-PES-407-PDA.M-PES-407@DA membranes.*

Samples	R <sub>a</sub> ( $\mu\text{m}$ )	R <sub>q</sub> ( $\mu\text{m}$ )	R <sub>t</sub> ( $\mu\text{m}$ )
M-PES-407	1.07	1.30	8.14
M-PES-407-PDA	0.717	2.73	42.7
M-PES-407@DA	1.21	1.55	10.4

**Figure S1.** UV curves of membranes. (a) Self-polymerization of DA in oxygen at different times (1h, 2h, 4h, 8h, 10h, 24h, 48h); (b) DA: APS=1:1; (c) DA: APS=1:2; (d) The three membranes: Self-polymerization, DA: APS=1:1, DA: APS=1:2 compare the UV absorption curves at 1h.

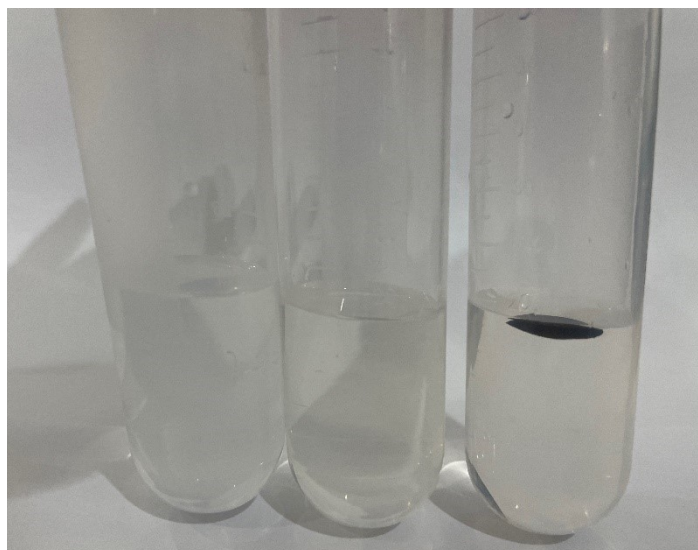


**Table S3.** *Data on the elemental content of XPS on three types of membranes.*

<b>Samples</b>	<b>Membrane surface atomic content (%)</b>				<b>Ratio</b>	
	C	N	O	S	N/C	O/C
M-PES-407	74.51	1.49	19.55	4.44	0.020	0.262
M-PES-407-PDA	75.43	3.82	19.08	1.66	0.0506	0.253
M-PES-407@DA	75.41	1.88	17.80	4.92	0.025	0.236

**Figure S2.** *Physical photos of three types of membranes dissolved in the original solvent (DMAc).*

**Low concentration**



**High concentration**

