

Supporting Information

Porous metal-organic molecular cage: A promising candidate to highly improve the nanofiltration performance of thin film nanocomposite membrane

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1. XRD patterns of membranes

XRD patterns of PA TFC and PA/*Fe*-cage TFN membranes were obtained from a X-ray D8 Advance instrument with Cu K α radiation in the 2θ range from 5° to 70° at a rate of $2^\circ/\text{min}$ (40 kV, 20 mA, $\lambda = 0.15406 \text{ nm}$).

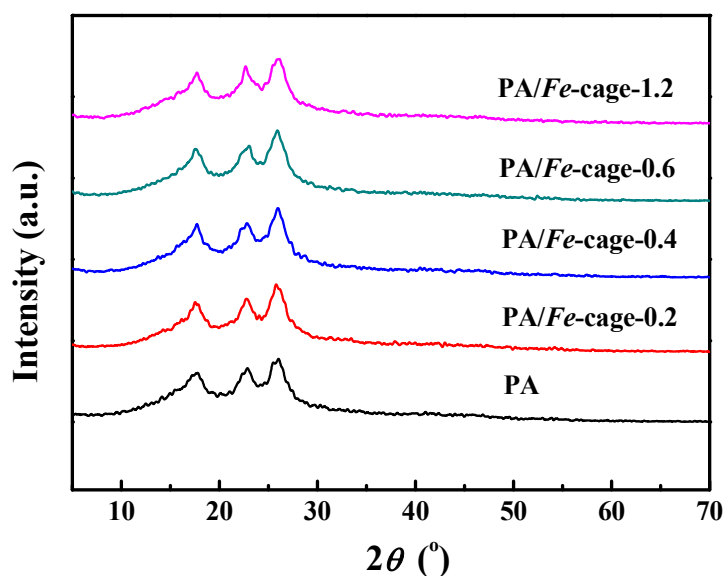


Figure S1. XRD patterns of PA TFC and PA/*Fe*-cage TFN membranes.

2. Chlorine resistant capability of the membranes

The chlorine resistant capability of the membranes was determined by employing the NaClO solution containing different concentration of active chlorine. The membranes were immersed into NaClO solution for 1 h, and then taken out. After being washed by DI water, the membranes were measured in terms of the water flux and Na₂SO₄ rejection using a 1 g/L Na₂SO₄ feed solution at 0.5 MPa.

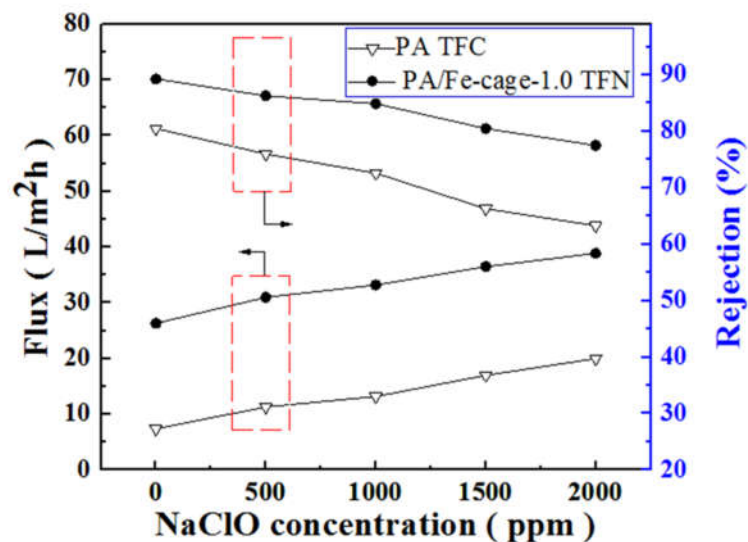


Figure S2. Water flux and Na_2SO_4 rejection behaviors of the PA TFC membrane and the PA/Fe-cage-1.0 TFN membrane with different chlorine exposure treatment.

3. EDX

Table S1. Element content of PA/Fe-cage-1.0 TFN membranes surface detected by EDX analysis.

Filtration time	Element Content (wt%)				
	C	N	O	S	Fe
0	62.67	27.41	9.12	0.39	0.41
1 day	68.65	22.48	8.14	0.34	0.39
5 days	68.62	22.43	8.14	0.33	0.38
20 days	67.93	22.48	8.15	0.35	0.39