

Supporting Information

Hydroxyl Porous Aromatic Frameworks for Efficient Adsorption of Organic Micropollutants in Water

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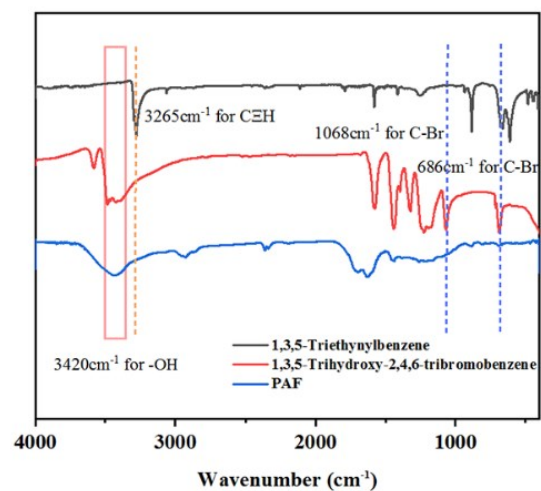
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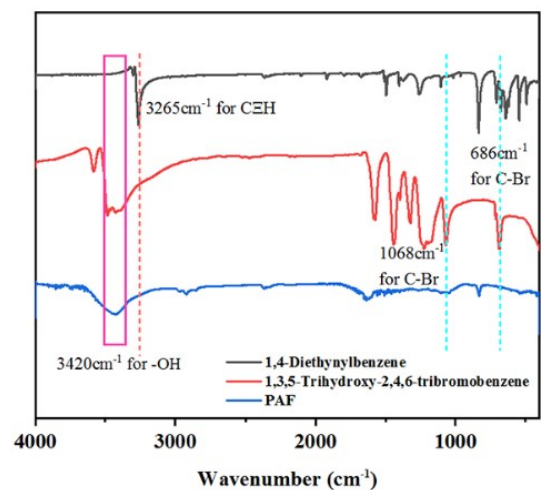
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(a)



(b)



(c)

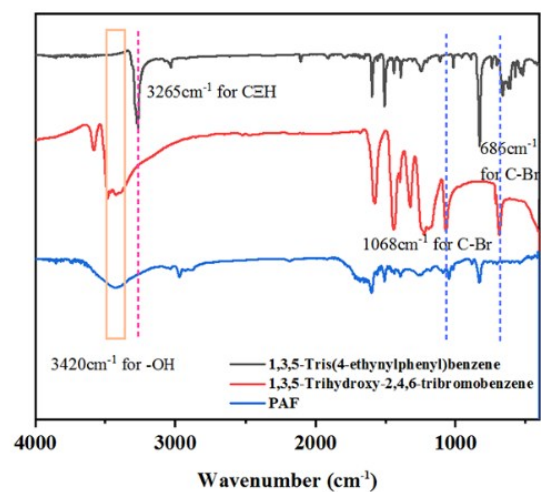
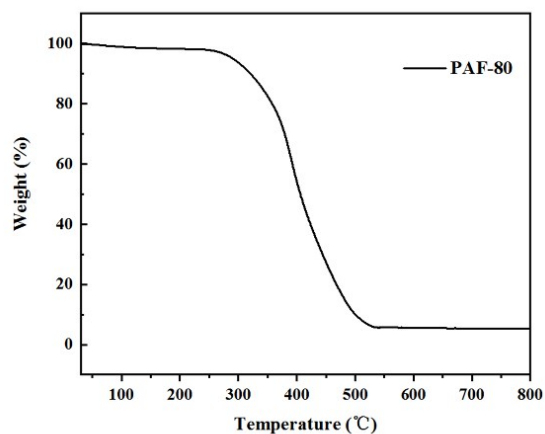
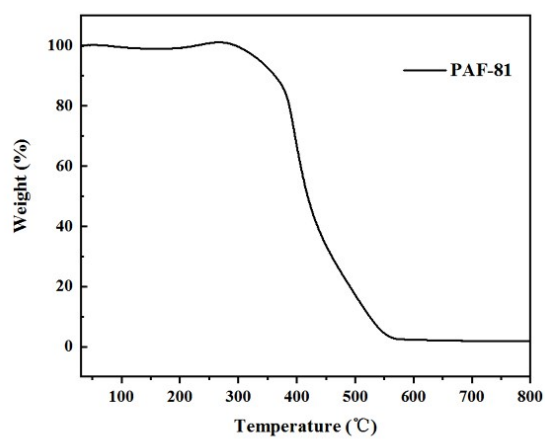


Fig. S1 (a-c) FT-IR spectra of PAF-80 (a), PAF-81 (b) and PAF-82 (c).¹⁻²

(a)



(b)



(c)

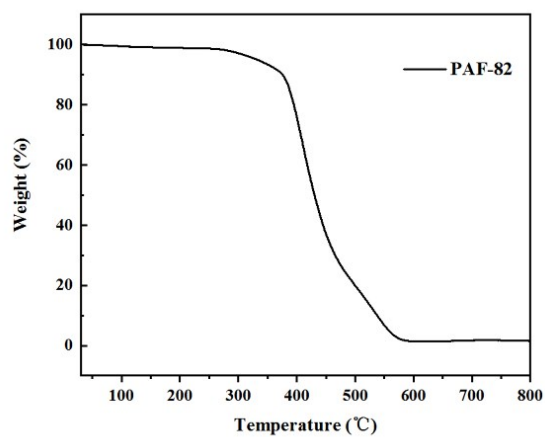


Fig. S2 (a-c) TGA curves of PAF-80 (a), PAF-81 (b) and PAF-82 (c) under air at 10°C/minute.

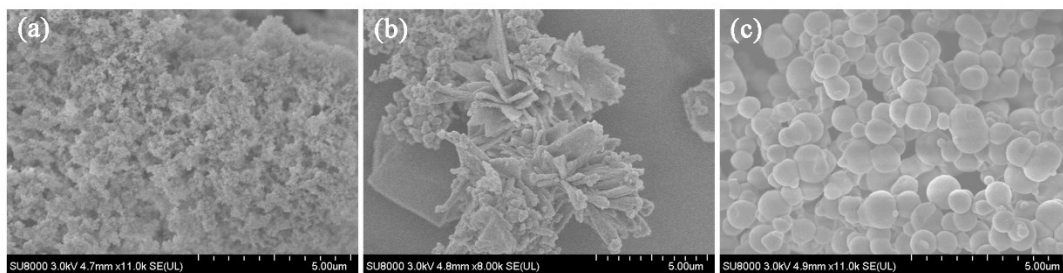


Fig. S3 (a-c) SEM images of PAF-80 (a), PAF-81 (b) and PAF-82 (c).

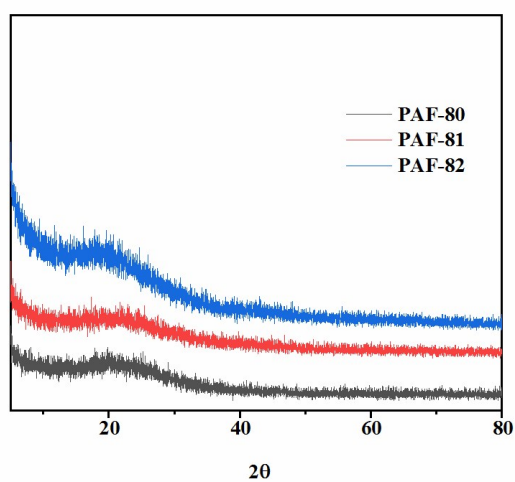


Fig. S4 Powder X-ray diffraction (PXRD) pattern of PAF-81 (black), PAF-81 (red) and PAF-80 (blue).

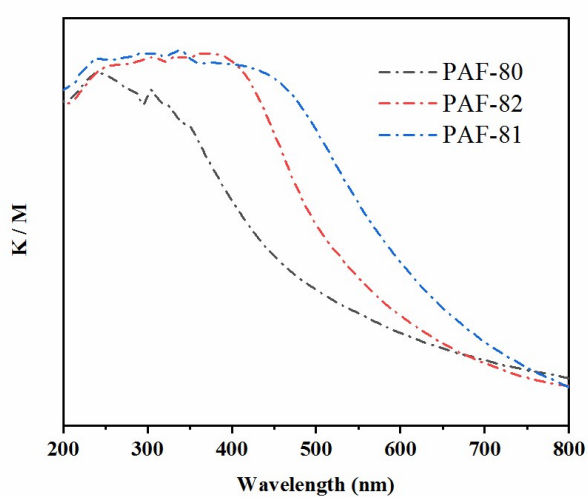


Fig. S5 UV-visible reflectance spectra of PAF-80 (black), PAF-81 (red) and PAF-81 (blue).

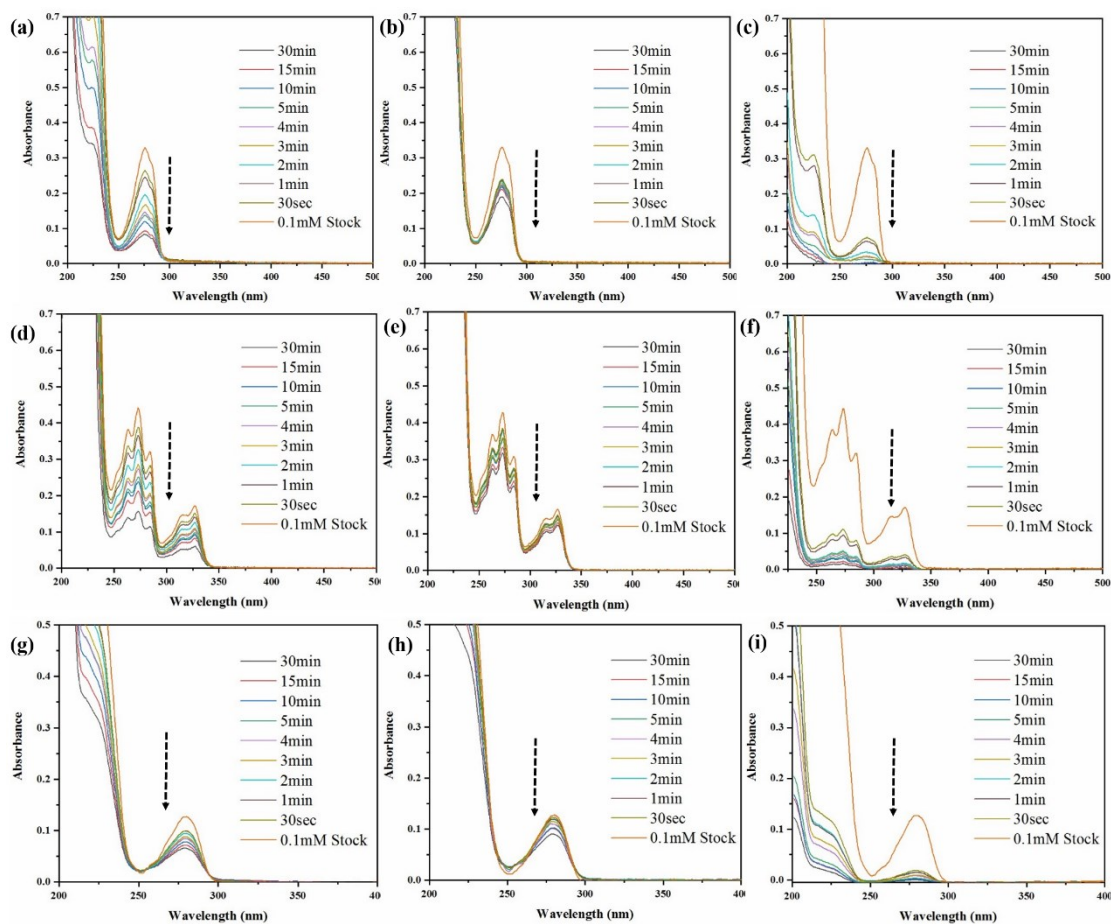


Fig. S6 (a-c) UV–visible absorbance spectra of the aqueous solution of BPA during adsorption of PAF-80, PAF-81 and PAF-82, (d-f) UV–visible absorbance spectra of the aqueous solution of 2-NO during adsorption of PAF-80, PAF-81 and PAF-82, (g-i) UV–visible absorbance spectra of the aqueous solution of PCMX during adsorption of PAF-80, PAF-81, and PAF-82.

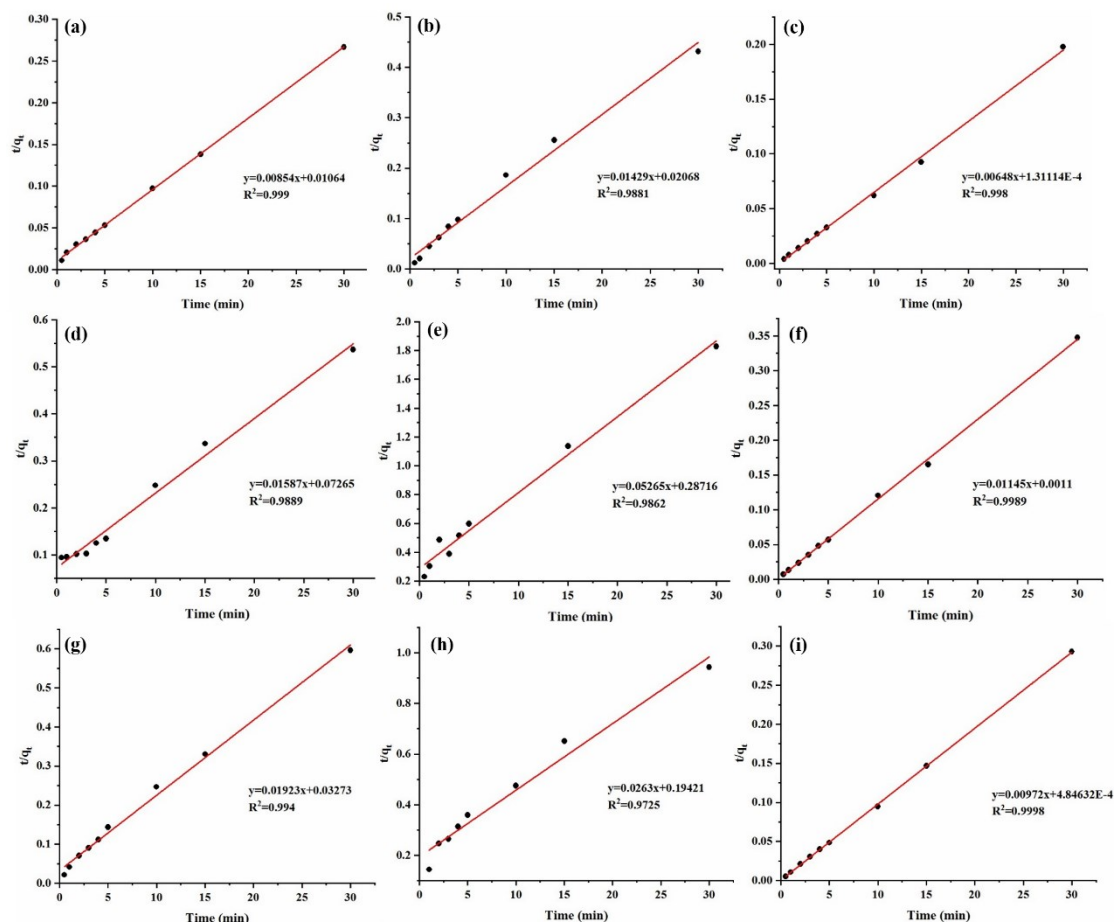


Fig. S7 (a-c) Pseudo-second-order kinetic data for BPA adsorption by PAF-80, PAF-81, and PAF-82. (d-f) Pseudo-second-order kinetic data for 2-NO adsorption by PAF-80, PAF-81, and PAF-82. (g-i) Pseudo-second-order kinetic data for PCMX adsorption by PAF-80, PAF-81, and PAF-82.

Table S1. Fitting parameters of pseudo-second-order kinetics and pollutant uptake rates by PAF materials.

sorbent	BPA			2-NO			PCMX		
	K_{obs} ($g\ mg^{-1}\ min^{-1}$)	R^2	t_{eq} (min)	K_{obs} ($g\ mg^{-1}\ min^{-1}$)	R^2	t_{eq} (min)	K_{obs} ($g\ mg^{-1}\ min^{-1}$)	R^2	t_{eq} (min)
PAF-80	0.0069	0.999	>45	0.0035	0.98	>60	0.0113	0.99	>45
PAF-81	0.0099	0.98	>60	0.0097	0.98	>60	0.0036	0.97	>60
PAF-82	0.3203	0.998	15	0.1192	0.99	30	0.1949	0.999	10

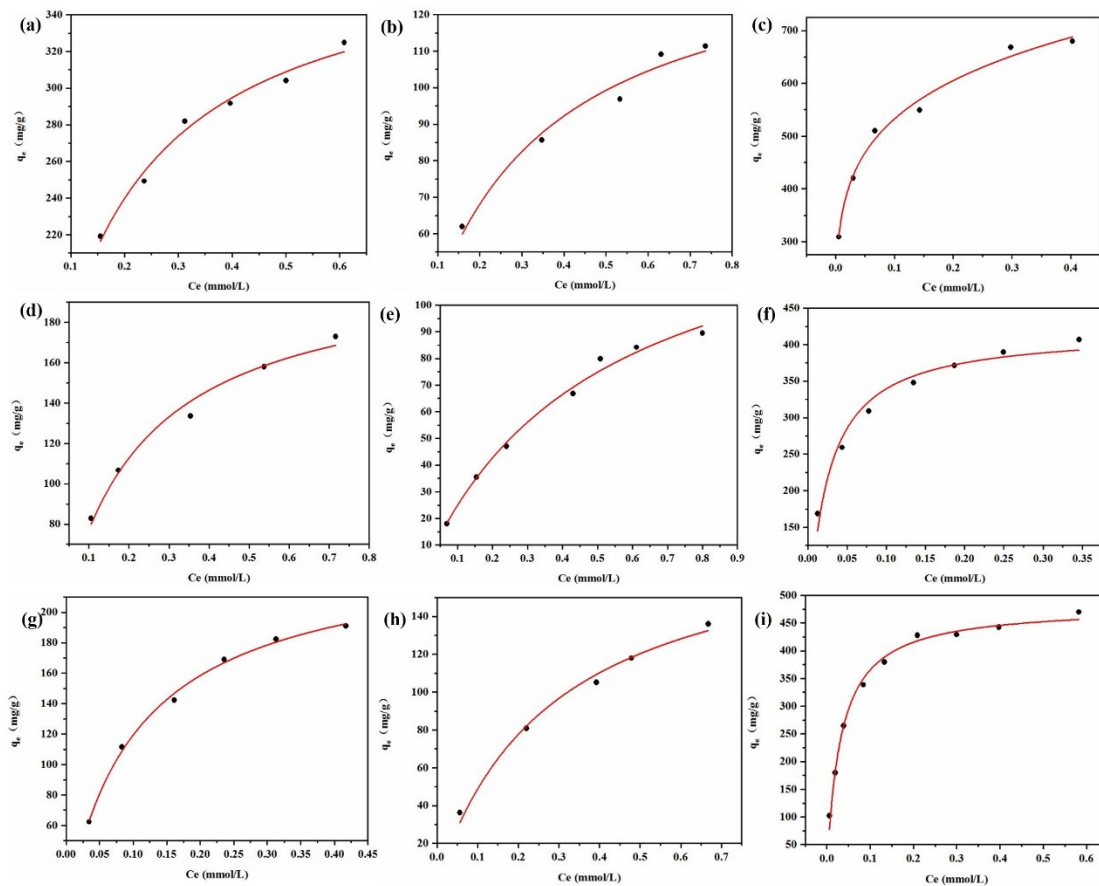


Fig. S8 (a-c) Langmuir adsorption isotherms of BPA onto PAF-80, PAF-81, and PAF-82. (d-f) Langmuir adsorption isotherms of 2-NO onto PAF-80, PAF-81, and PAF-82. (g-i) Langmuir adsorption isotherms of PCMX onto PAF-80, PAF-81, and PAF-82.

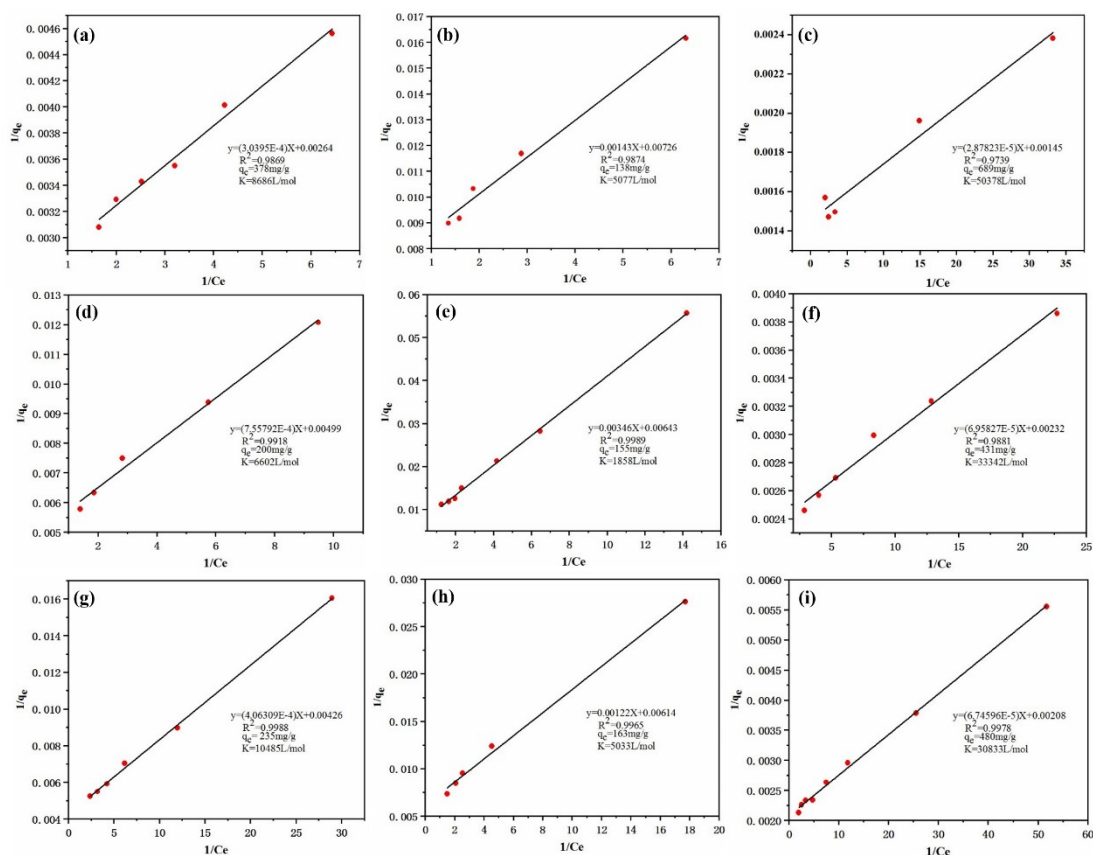


Fig. S9 Langmuir linear plots of BPA onto PAF-80, PAF-81, and PAF-82. (d-f) Langmuir linear plots of 2-NO onto PAF-80, PAF-81, and PAF-82. (g-i) Langmuir linear plots of PCMX onto PAF-80, PAF-81, and PAF-82.

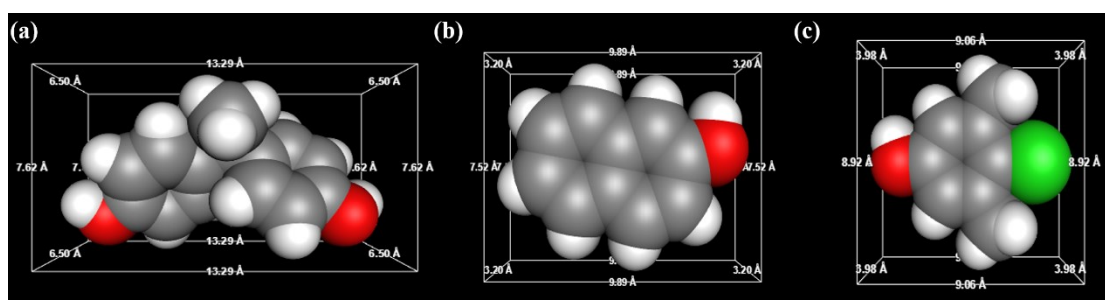


Fig. S10 Molecule sizes of (a) Bisphenol A, (b) 2-Naphthol, and (c) *p*-Chloroxylenol.

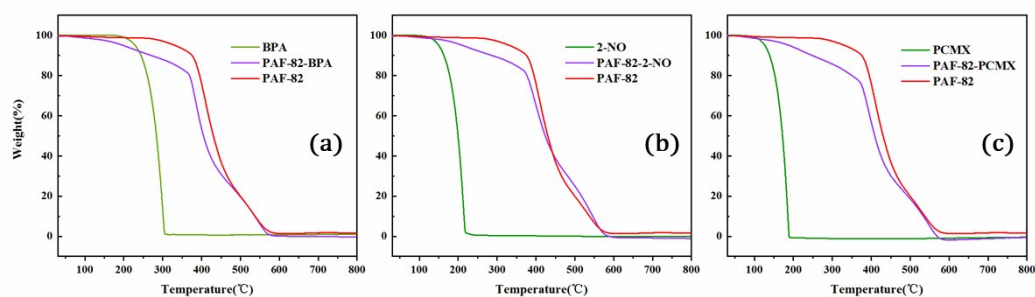


Fig. S11 TGA of PAF-82 before adsorption (red curves) and after adsorption (purple curves) to different micropollutants of (a) BPA, (b) 2-NO and (c) PCMX.

References

1. Tan, D.; Fan, W.; Xiong, W.; Sun, H.; Cheng, Y.; Liu, X.; Meng, C.; Li, A.; Deng, W.-Q., Study on the Morphologies of Covalent Organic Microporous Polymers: the Role of Reaction Solvents. *Macromolecular Chemistry and Physics* **2012**, 213 (14), 1435-1440.
2. Shen, X.; Faheem, M.; Matsuo, Y.; Aziz, S.; Zhang, X.; Li, Y.; Song, J.; Tian, Y.; Zhu, G., Polarity engineering of porous aromatic frameworks for specific water contaminant capture. *Journal of Materials Chemistry A* **2019**, 7 (6), 2507-2512.