Supporting Information for

One-pot synthesis of highly porous anionic hypercrosslinked polymer for ultrafast adsorption of organic pollutants

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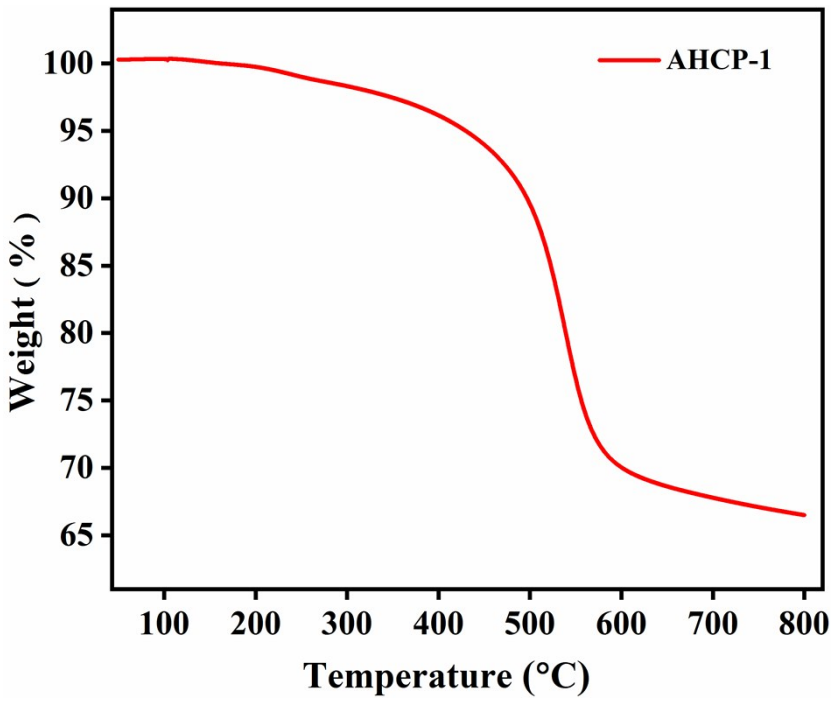


Fig. S1 TG curve of **AHCP-1** under N_2 atmosphere.

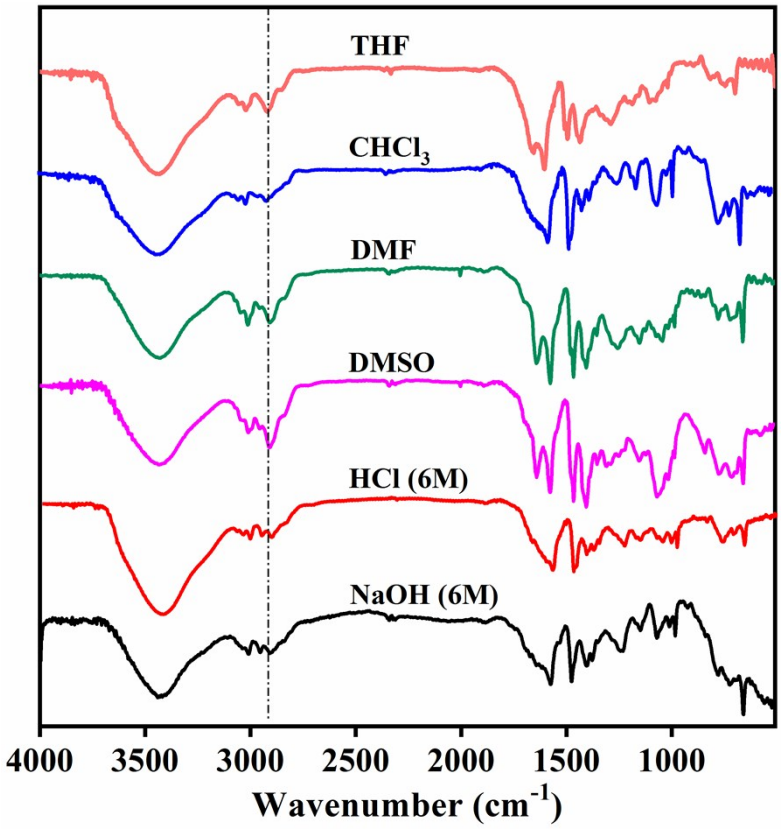


Fig. S2 FT-IR of **AHCP-1** after treatment for one week in different solvents.

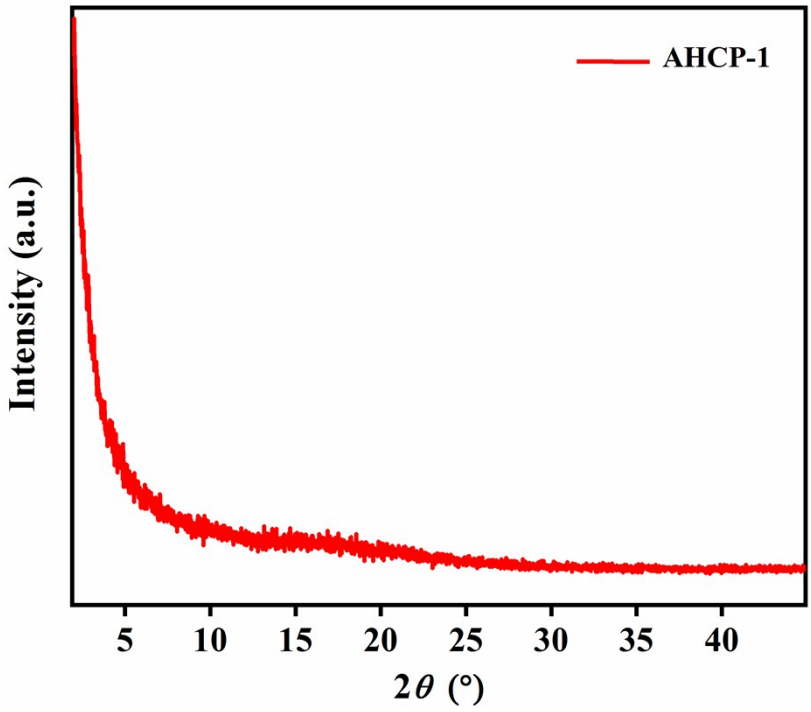


Fig. S3 The PXRD pattern of **AHCP-1** at wide angel showing broad diffraction for thick amorphous pore wall.

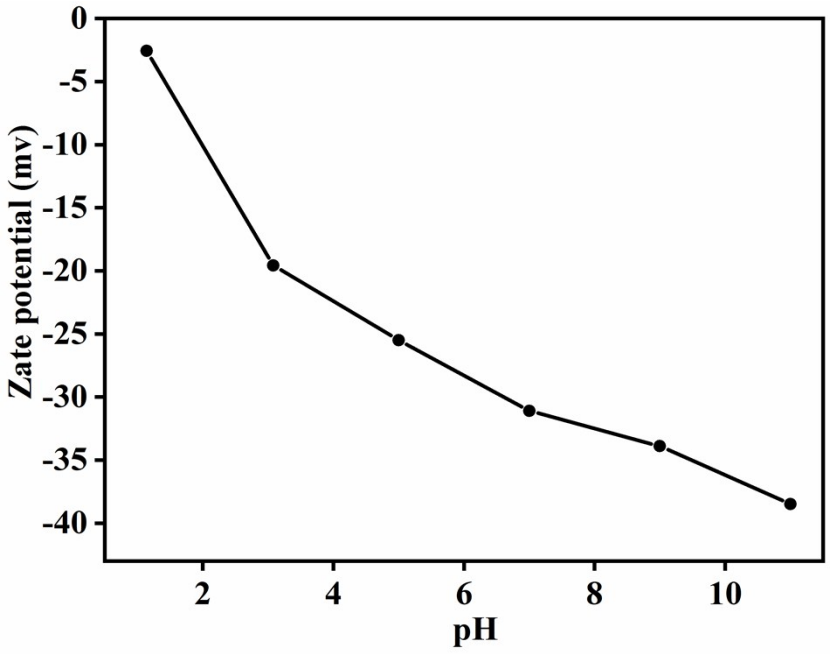


Fig. S4 Zeta potential vs. pH value of **AHCP-1.**

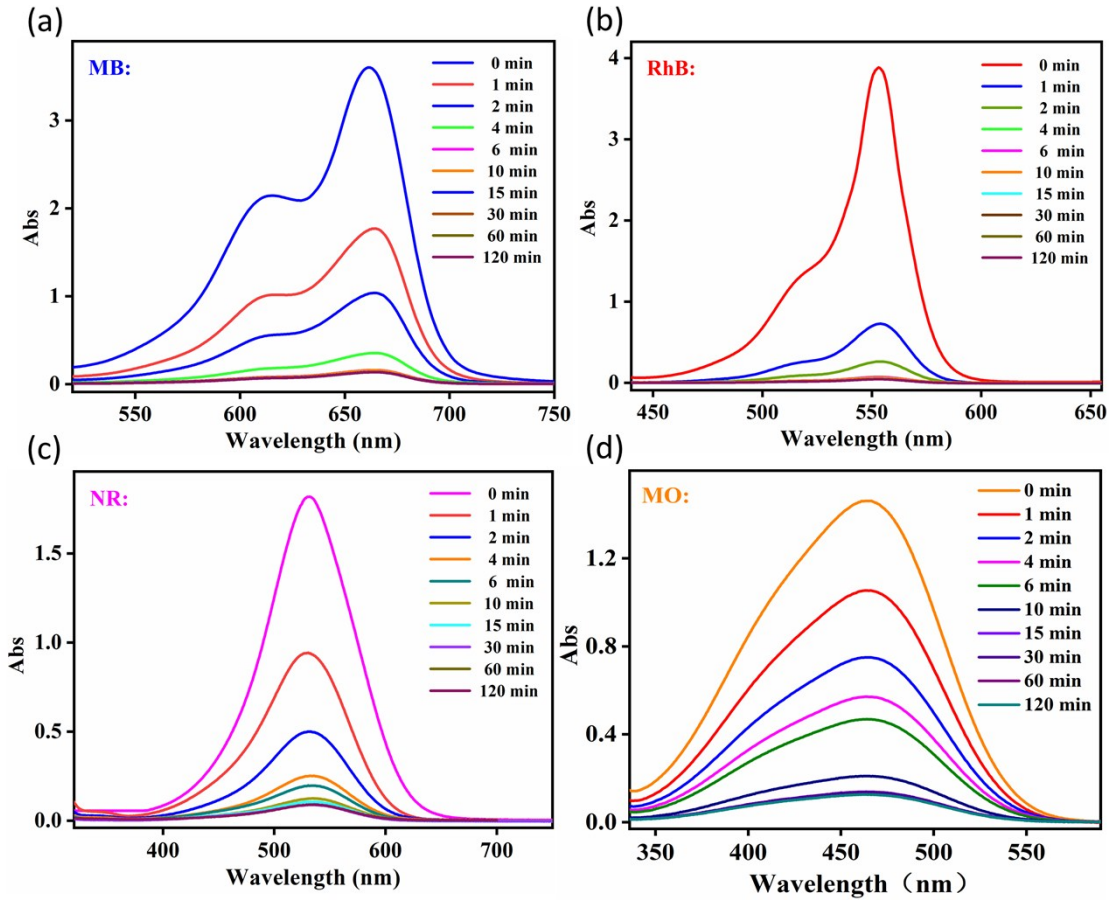


Fig. S5 Time-dependant electronic absorption spectral change (from 0 to 120 minutes) of the dyes at initial concentration of 20 mg·L^{-1}. (a) MB, (b) RhB, (c) NR, (d) MO.

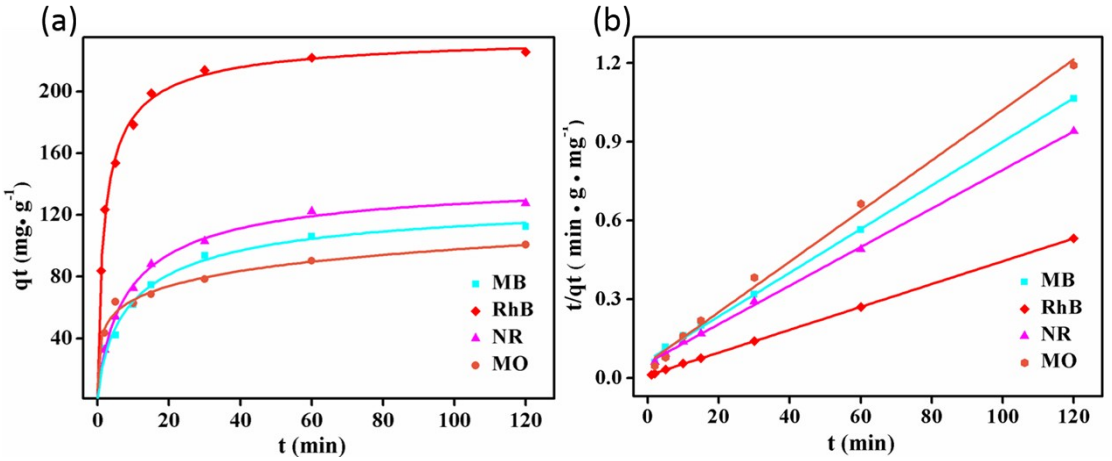


Fig. S6 (a) Effect of contact time on the dyes adsorption at initial concentration of 200 mg L^{-1}. (b) Pseudo-second-order kinetics of dyes adsorption.

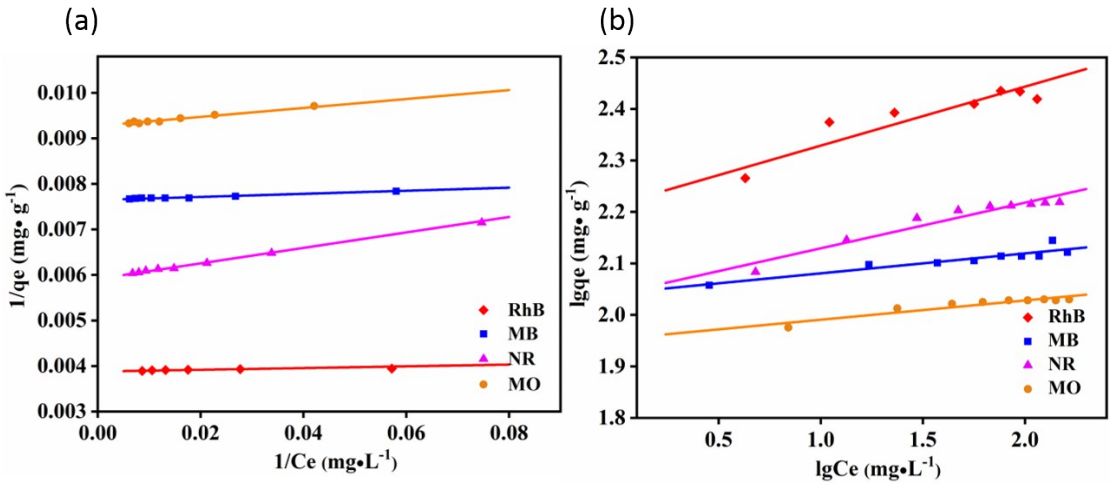


Fig. S7 Linear regression using Langmuir isotherm model (a) and Freundlich isotherm model (b) for RhB, MB, NR, and MO on **AHCP-1**.

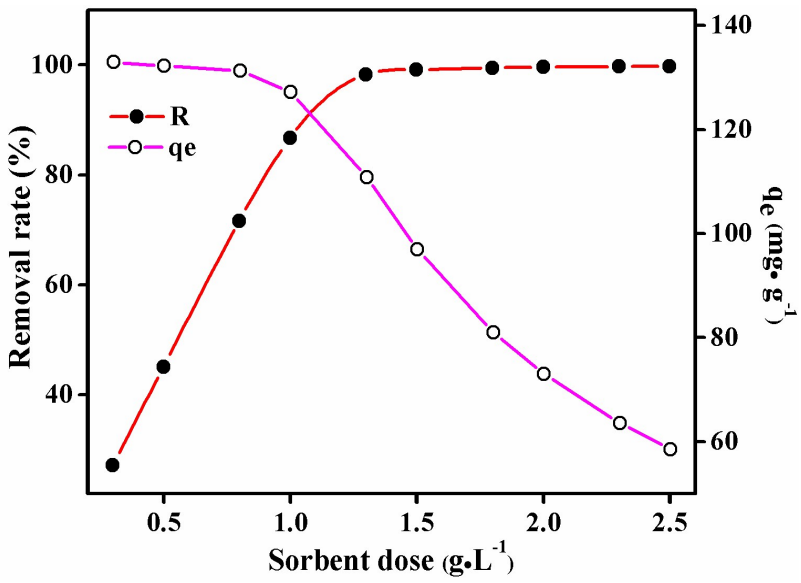


Fig. S8 The effect of **AHCP-1** dose on the adsorption of MB.

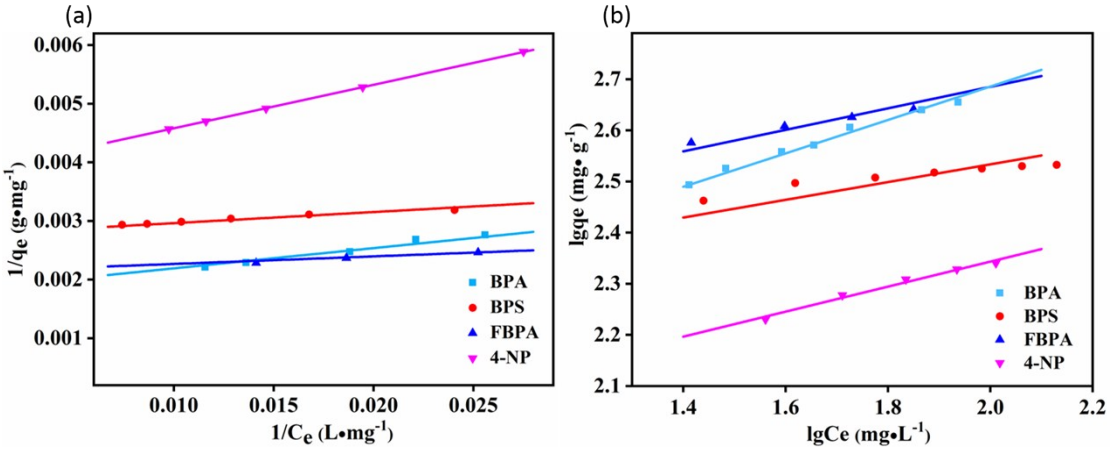


Fig. S9 Linear regression using Langmuir isotherm model (a) and Freundlich isotherm model (b) for BPA, BPS, FBPA, and 4-NP on **AHCP-1**.

Table S1. Additional six building blocks and yields of hypercrosslinking reactions.

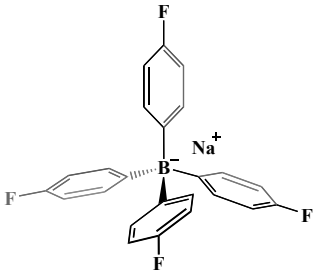
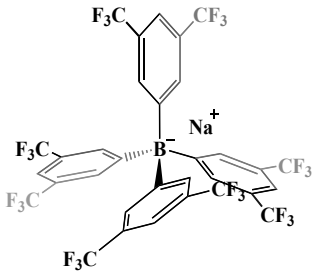
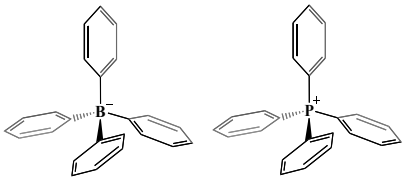
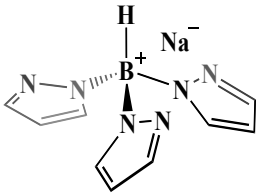
No.	Chemical names	Building units	Yield
1	Sodium tetrakis(4-fluorophenyl)borate		33.5%
2	Sodium tetrkis[3,5-bis(trifluoromethyl)phenyl] borate		0.4%
3	Tetraphenylphosphorium tetraphenylborate		74%
4	Sodium tris(1-pyrazolyl)borohydride		0%

Table S2. Average weight change before and after soaking in solvent for one week.

Solvents	Original weight (mg)	Soaked weight (mg)	Weight retention rate
THF	20.3	19.6	96.6%
$CHCl_3$	20.1	20.0	98.0%
DMF	20.7	20.0	96.6%
DMSO	19.8	18.9	95.4%
aqueous HCl (6 M)	19.5	19.1	97.9%
aqueous NaOH (6 M)	20.2	19.8	98.0%

Table S3. Isotherm Parameters for the Adsorption of dyes onto **AHCP-1**

	Langmuir isotherm			Freundlich isotherm		
	b (L·mg^{-1})	q_{max} (mg·g^{-1})	R^2	K_f (L·mg^{-1})	n	R^2
MB	2.263	130.7	0.996	112.5	30.99	0.838
RhB	1.879	258.4	0.997	158.4	9.081	0.916
NR	0.348	169.2	0.975	96.36	54.17	0.918
MO	0.944	107.9	0.981	88.81	25.08	0.865

Table S4. Summary of the maximum adsorption capacity (q_{max}) of Rhodamine B (RhB) on various adsorbents.

Adsorbent	q_{max}/mg g^{-1}	References
C_carnauba_$CaCl_2$	39.218	S1
Char AC	189.8	S2
MoS_2	49.2	S3
MWCNT–COOH	42.68	S4
Carboxy-GO/zeolite	34.13	S5
FGNC	33.2	S6
$Cd_6(L)_2(bib)_2(DMA)_4$	67	S7
AHCP-1	**255**	**This work**

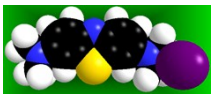
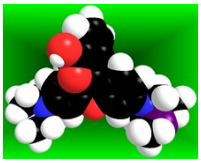
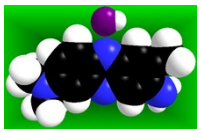
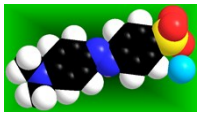
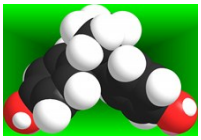
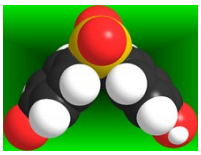
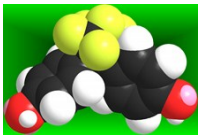
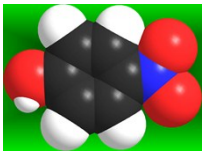
Table S5. Isotherm Parameters for the Adsorption of Phenolic derivatives micropollutants onto **AHCP-1.**

	Langmuir isotherm			Freundlich isotherm		
	b (L • mg^{-1})	q_{max} (mg • g^{-1})	R^2	K_f (L • mg^{-1})	n	R^2
BPA	0.054	540.5	0.992	0.310	3.059	0.986
BPS	0.146	361.1	0.994	0.339	5.767	0.877
FBPA	0.165	467.2	0.993	0.354	4.751	0.987
4-NP	0.052	260.4	0.998	0.268	4.088	0.980

Table S6. Summary of the maximum adsorption capacity (q_{max}) of Bisphenol A (BPA) on various adsorbents.

Adsorbent	q_{max}/mg g^{-1}	References
P-CDP	88	S8
magnetic rGOs	48.74	S9
GQ-02	313.5	S10
W20N	432.34	S11
graphene	181.82	S12
EPI-CDP	84	S13
PP-g-GMA-OA	45.59	S14
AHCP-1	**540.5**	**This work**

Table S7. Structural parameters for the eight organic pollutants.

Organic Pollutants	Space-filling model	Chemical class	Molar mass ($g \cdot mol^{-1}$)	Molecular 3-D size (Å)
Methylene blue (MB)		Cationic dye	319.8	17.043×8.243×6.815
Rhodamine B (RhB)		Cationic dye	479.01	18.089×14.296×8.265
Neutral red (NR)		Neutral dye	288.77	14.628×7.966×4.640
Methyl orange (MO)		Anionic dye	327.33	19.803×7.084×6.346
Bisphenol A (BPA)		Bisphenol A analogues	228.29	12.215×7.701×6.697
Bisphenol S (BPS)		Bisphenol A analogues	250.27	10.813×7.907×6.501
Hexafluorobisphenol A (FBPA)		Bisphenol A analogues	336.23	12.393×8.494×7.445
4-Nitrophenol (4-NP)		Phenolics	139.11	9.026×6.537×3.335

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