

Electronic Supplementary Material (ESI) for RSC Advances.

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Supporting information for

**A pharmaceutical hydrogen-bonded covalent organic polymer for
enrichment of volatile iodine**

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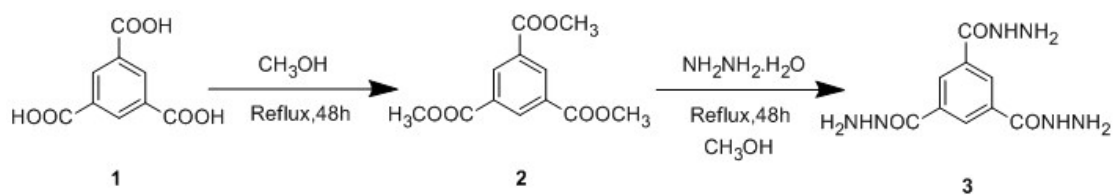
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Contents

1. Synthesis
2. Characterization
3. FT-IR spectra
4. PXRD spectrum
5. TGA curve
6. Iodine enrichment test
7. Reference

1. Synthesis



Scheme S1 General synthetic routes.

2. Characterization

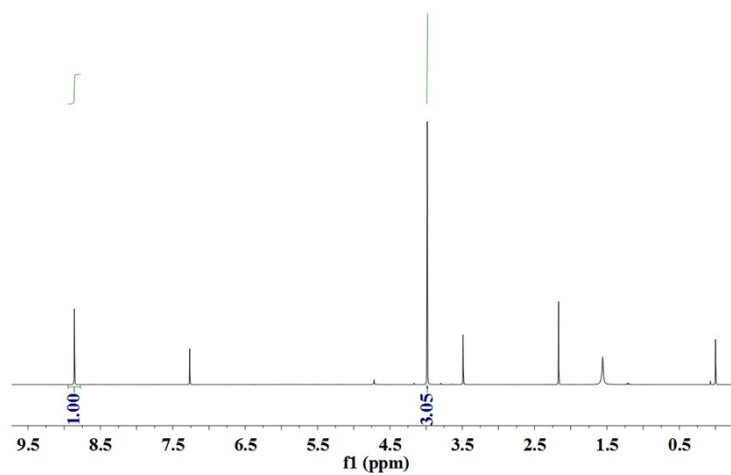


Fig. S1 ^1H NMR spectrum of trimethyl benzene-1,3,5-tricarboxylate (2).

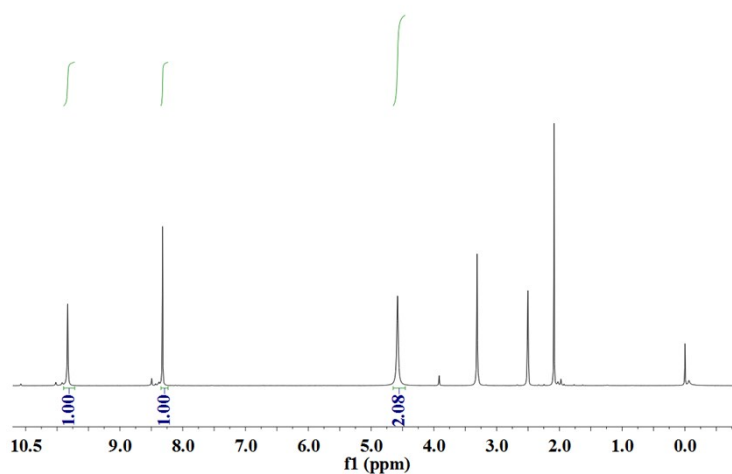


Fig. S2 ^1H NMR spectrum of benzene-1,3,5-tricarbohydrazide (3).

3. FT-IR spectra

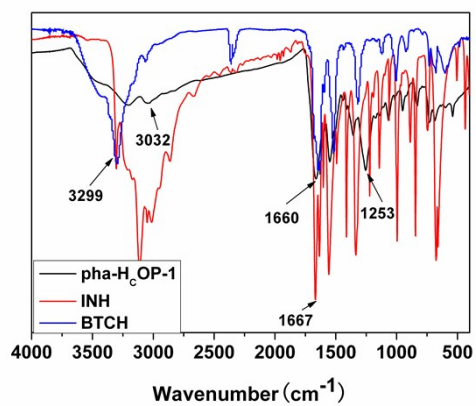


Fig. S3 FT-IR spectra of pha-H_cOP-1, INH and BTCH.

4. PXRD spectrum

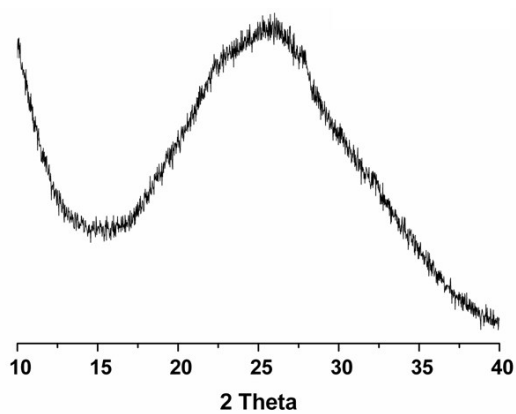


Fig. S4 PXRD spectrum of of pha-H_cOP-1.

5. TGA curve

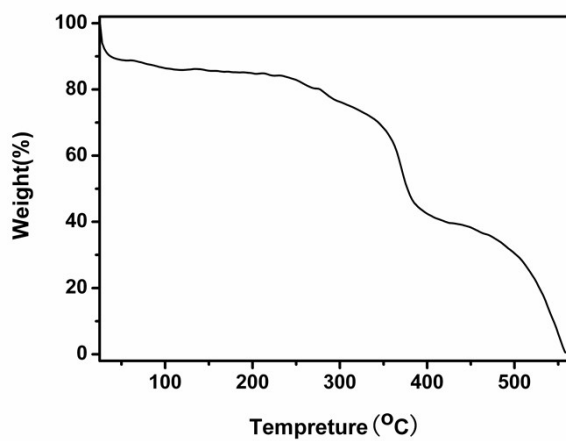


Fig. S5 TGA curve of of pha-H_cOP-1.

6. Iodine enrichment test

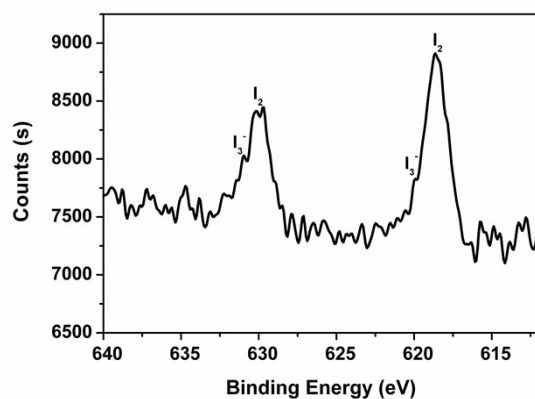


Fig. S6 XPS spectrum of $I_2@ pha-H_cOP-1$ after washed by ethanol.

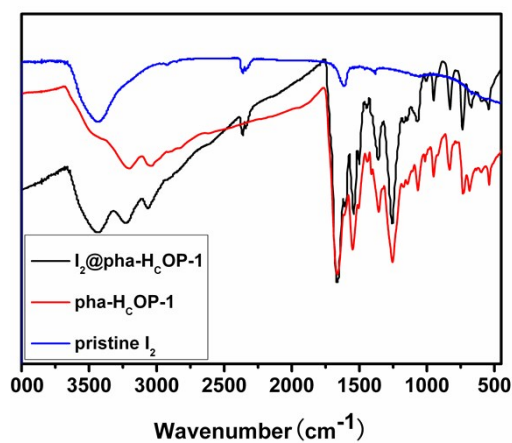


Fig. S7 FT-IR spectra of pristine I_2 , $pha-H_cOP-1$, and $I_2@ pha-H_cOP-1$.

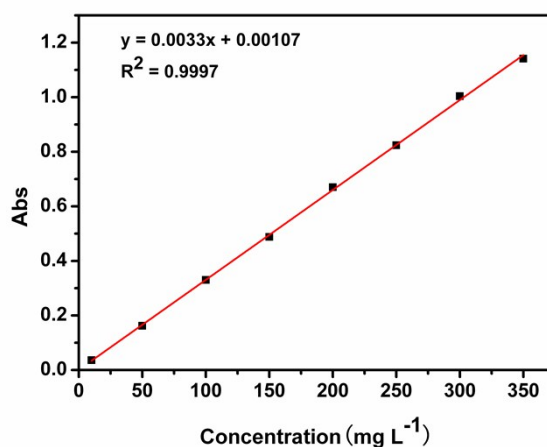


Fig. S8 Calibration plot of standard iodine in hexane solutions obtained by UV-Vis spectrophotometer at 525 nm.

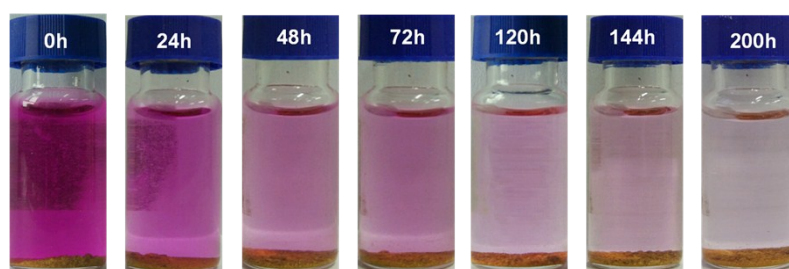


Fig. S9 Photographs showing the visual color change of iodine enrichment progress when 10 mg of pha-H_COP-1 was immersed in a hexane solution of iodine (1000 mg L⁻¹, 10 mL).

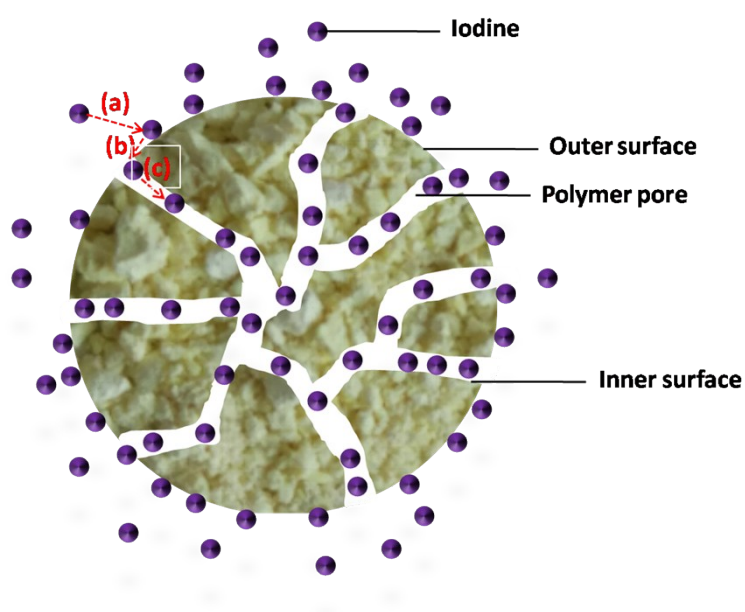


Fig. S10 The adsorption process: (a) External diffusion; (b) Internal diffusion; (c) Adsorption.

Table S1. Iodine adsorption properties of porous materials.

No.	Adsorbent	Temperature [°C]	Adsorbent Capacity [mg I ₂ /g]	References
1.	Activated carbon	75	30	[1]
2.	Cg-5P	~25	87	[2]
3.	[Zn(C ₆ H ₈ O ₈)]·~2H ₂ O	19	166	[3]
4.	Cg-5C	~25	239	[2]
5.	Ag@Mon-POF	70	250	[4]

6.	Ag@Zeolite Mordenites	95	275	[5]
7.	CC3	~20	364	[6]
8.	[Cd(L) ₂ (ClO ₄) ₂] \cdot H ₂ O	~25	~460	[7]
9.	CMPN-1	70	970	[8]
10.	CMPN-2	70	1100	[8]
11.	ZIF-8	75	1200	[9]
12.	PU1	70	1300	[10]
13.	pha-H _C OP-1	80	~1310	This work
14.	HKUST-1	75	~1500	[9]
15.	NTP	75	1800	[1]
16.	CMPN-3	70	2080	[8]
17.	PAF-25	75	~2600	[11]
18.	PAF-23	75	~2710	[11]
19.	PAF-24	75	~2760	[11]

7. Reference

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