Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Encapsulation tungstophosphoric acid into harmless MIL-101 (Fe) for effectively removing cationic dye from aqueous solution

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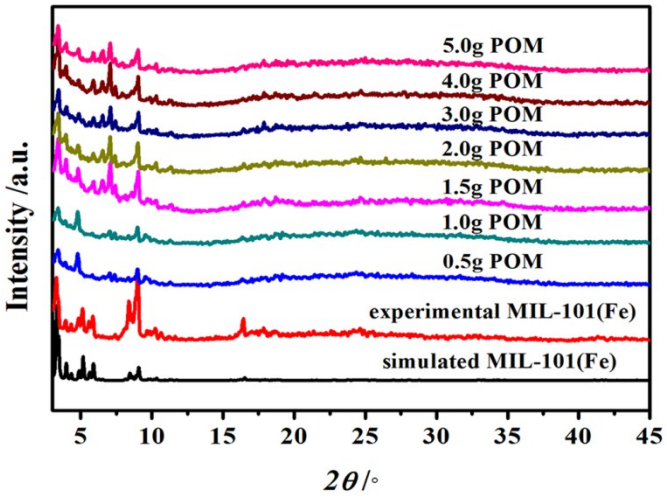

Fig. S1 The XRD patterns of PW_{12}@MIL-101 with different loading of $H_3PW_{12}O_{40}$.

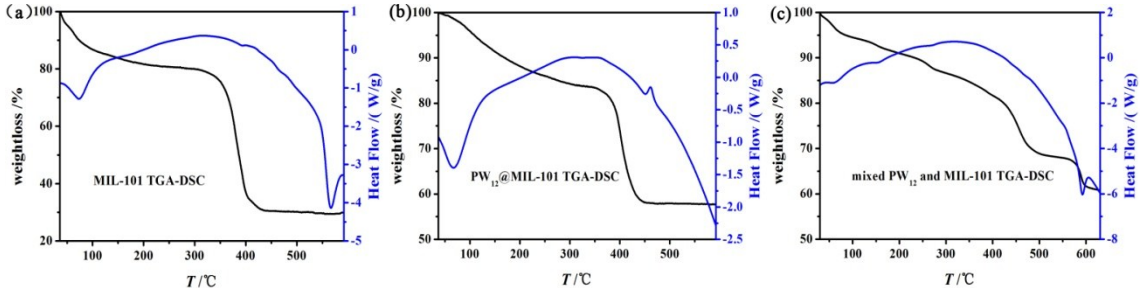

Fig. S2 TGA-DSC of MIL-101, PW_{12}@MIL-101, mixed PW_{12} and MIL-101.

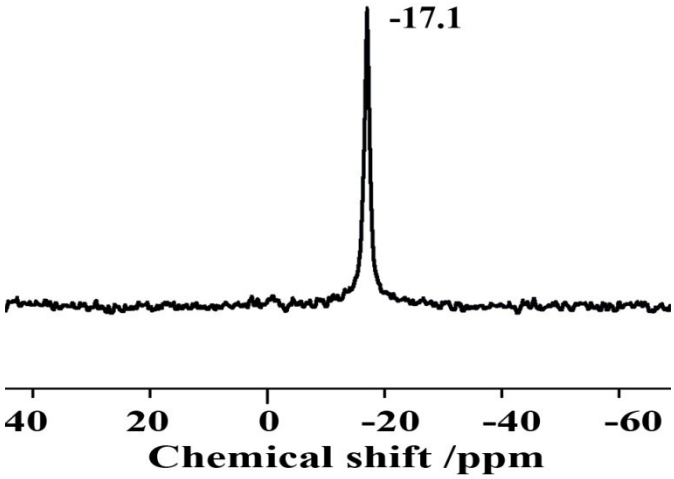

Fig. S3 The ^{31}P NMR spectra of PW_{12}@MIL-101.

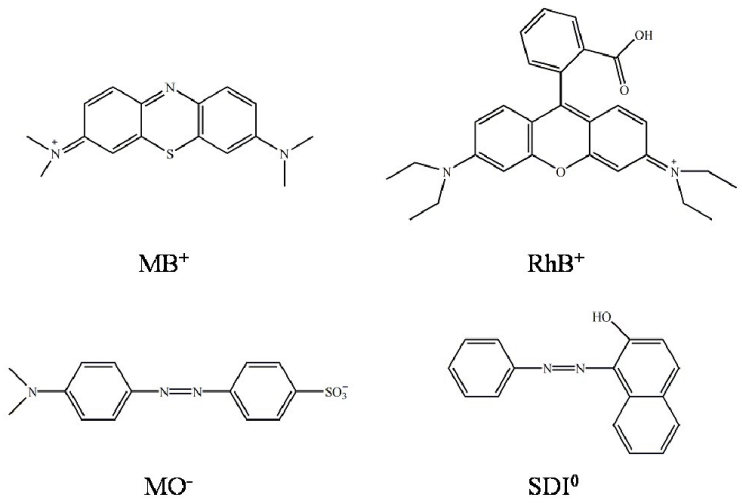

Fig. S4 The chemical structures of different dyes used in the adsorption experiment.

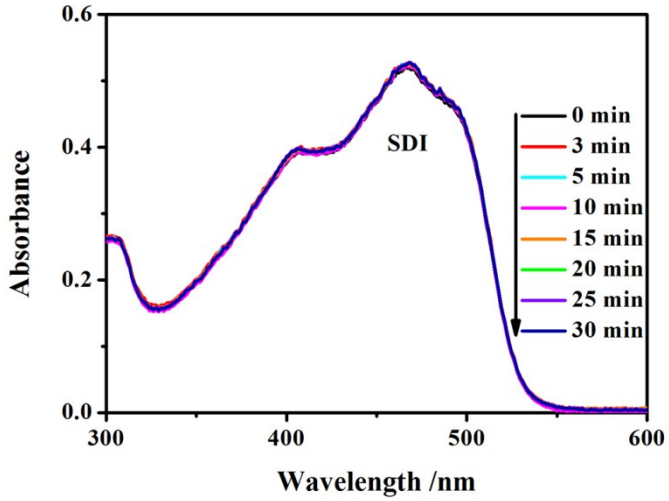

Fig. S5 The UV-Vis absorption spectra of 10 mg/L SDI dye solution.

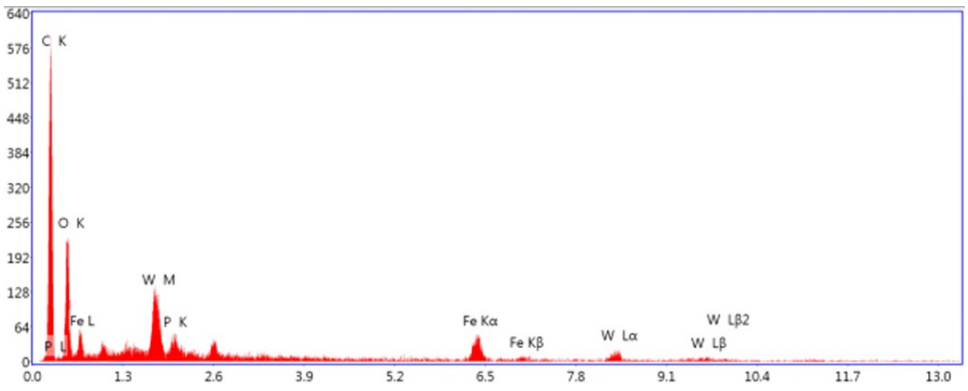

Fig. S6 The EDS of the regenerated PW_{12}@MIL-101.

Table S1 ICP results of the PW_{12}@MIL-101 composites.

composites	W (wt%)	W/Fe (wt/wt)	PW_{12} (wt%)	PW_{12} (μmol/g)	n(PW_{12})/ n(MIL-101)
PW_{12}-0.5g@MIL-101	12.32	1.676	16.68	55.85	0.1275
PW_{12}-1.0g@MIL-101	19.38	1.906	26.25	87.85	0.1450
PW_{12}-1.5g@MIL-101	21.57	2.117	29.22	97.78	0.1612
PW_{12}-2.0g@MIL-101	24.49	2.329	33.14	111.01	0.1771
PW_{12}-3.0g@MIL-101	27.27	2.521	36.90	123.62	0.1917
PW_{12}-4.0g@MIL-101	30.56	2.706	41.35	138.53	0.2061
PW_{12}-5.0g@MIL-101	30.56	2.706	41.35	138.53	0.2061

Table S2 N_2 adsorption-desorption results of MIL-101 and PW_{12}@MIL-101.

Sample	BET SA/ (m^2/g)	Pore Volume[a]/ (m^3/g)	Pore Size[b]/ (nm)
MIL-101	2789	1.398	4.12
PW_{12}@MIL-101	686	0.39	3.24

a: $P/P_0 = 0.99$; b: BJH method.