Electronic Supplementary Information

Functionalized Metal-Organic Framework as a New Platform for Efficient and Selective Removal of Cadmium (II) from aqueous solution

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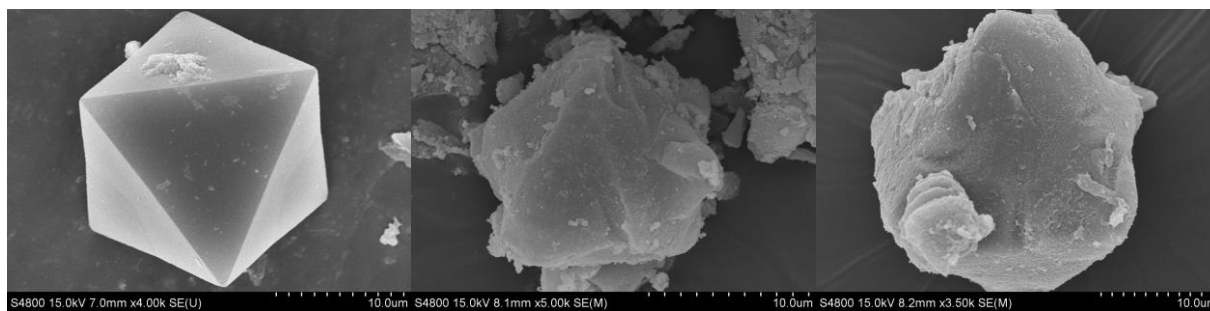
Fig. S1. SEM images for $Cu_3(BTC)_2$ (left), $Cu_3(BTC)_2$-SO_3H (middle), and $Cu_3(BTC)_2$-SO_3H (right) treated with cadmium solution.
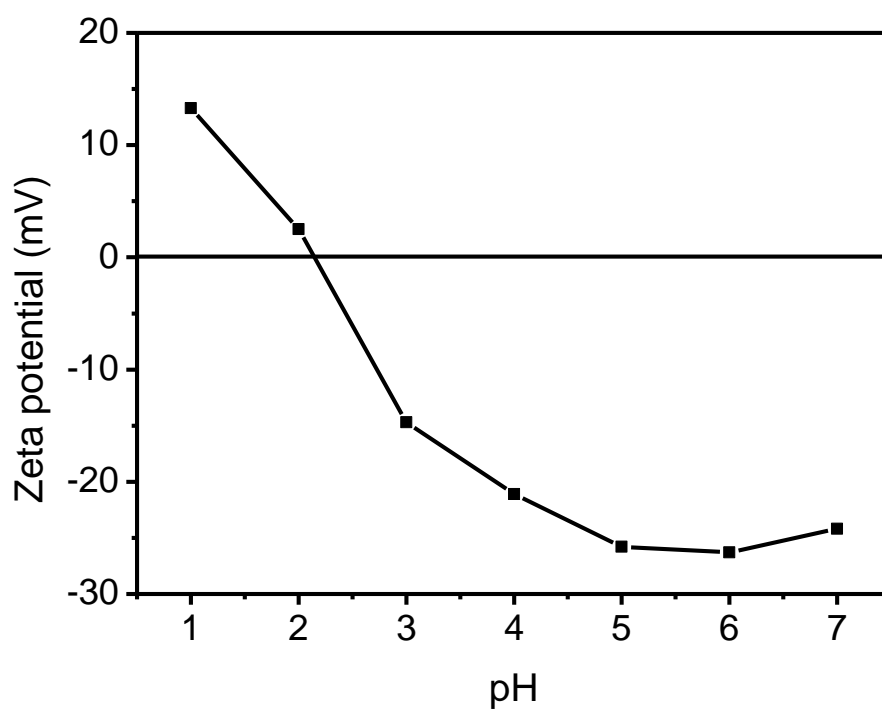
Fig. S2. Zeta potential curves vs. pH of the $Cu_3(BTC)_2$-SO_3H.
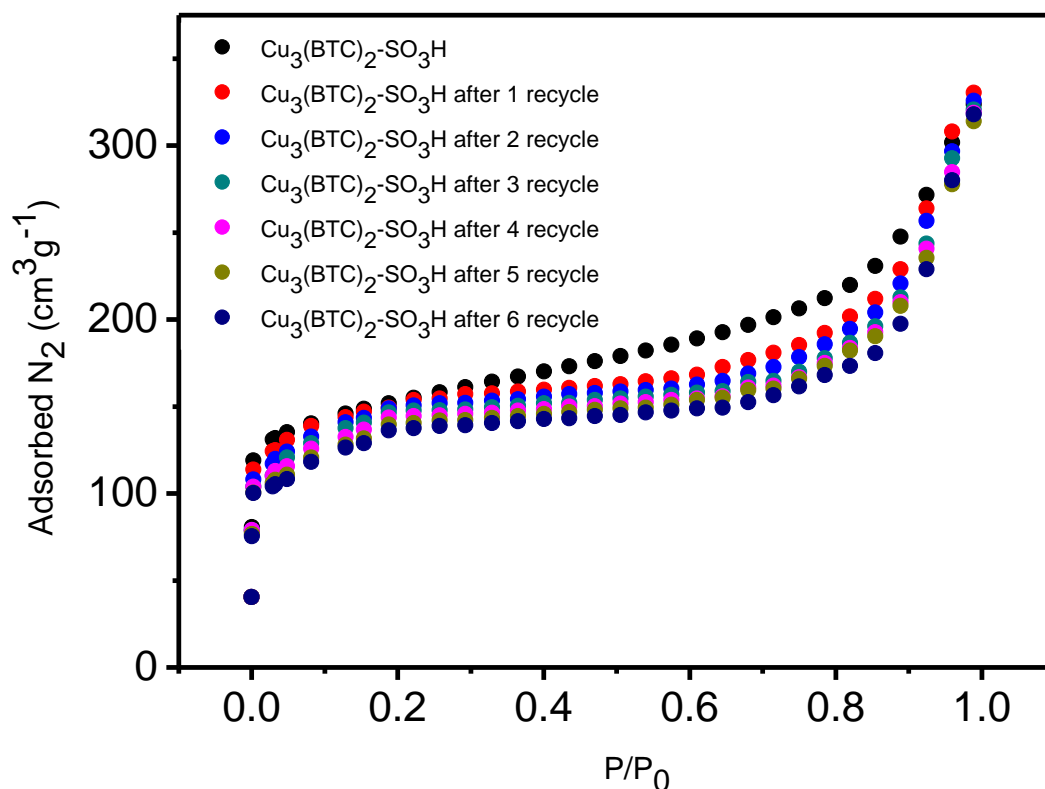
Fig. S3. N$_2$ adsorption isotherms for Cu$_3$(BTC)$_2$-SO$_3$H and Cu$_3$(BTC)$_2$-SO$_3$H treated with cadmium solution after, 1, 2, 3, 4, 5, and 6 cycles.

Table S1. The Langmuir and Freundlich isotherm constants of cadmium by Cu$_3$(BTC)$_2$-SO$_3$H

Metal ion	Langmuir constants			Freundlich constants		
	q_m (mg/g)	K_L (L/mg)	R^2	K_F (L/g)	$1/n$	R^2
Cadmium	88.73	0.0305	0.9981	10.7884	0.3836	0.9725

Table S2. Kinetic parameters for the adsorption of cadmium by Cu$_3$(BTC)$_2$-SO$_3$H

Metal	Experimental	Pseudo-first-order kinetic model			Pseudo-second-order kinetic model		
Cadmium	q_e (mg/g)	q_e (mg/g)	k_1 (1/min)	R^2	q_e (mg/g)	K_2 ((g/mg)/min)	R^2

0.9873	0.6506	0.2218	0.9885	1.066	0.6818	0.9994