Supporting Information

Dithiocarbamate Modification of Activated Carbon for the Efficient Removal of Pb(II), Cd(II), and Cu(II) from Water

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Table S1 The equations of applied kinetics models and isotherm models.

	equation	equation	parameters
kinetic model	Pseudo-first-model(PFO)	$q_t = q_e(1 - e^{-k_1 t})$	qt and qe are the adsorption capacities at the time t and at equilibrium (mg/g); k1is the rate constant of the PFO kinetic model (min-1).
	Pseudo-second-model(PSO)	$q_t = \frac{k_2 q_e^2 t}{1 + k_2 q_e t}$	k2 is the rate constant of PSO kinetic model (g mg−1 min−1).
	Intra-particle diffusion model(IPD)	$q_t = k_{id} t^{1/2} + C_i$	kid is the diffusion rate constant of intra-particle model (mg/(g·min)); Ci is the thickness of the boundary layers (mg/g).
isotherm	Langmuir	$q_e = \frac{q_m K_L C_e}{1 + K_L C_e}$	KL is the Langmuir constant (L/g); qm is the theoretical maximum adsorption capacity (mg/g);.
	Freundlich	$q_e = K_F C_e^{1/n}$	KF is the Freundlich constant indicative of the relative adsorption capacity of the adsorbent (mg/g); n represents Freundlich constant indicative of the heterogeneity factor.
	Temkin	$q_e = \frac{RT}{b_T} \ln a_T C_e$	aT is equilibrium binding constant related to the maximum adsorption binding energy (L/mg); bT is the Temkin constant corresponding to heat of sorption (kJ/mol), respectively.

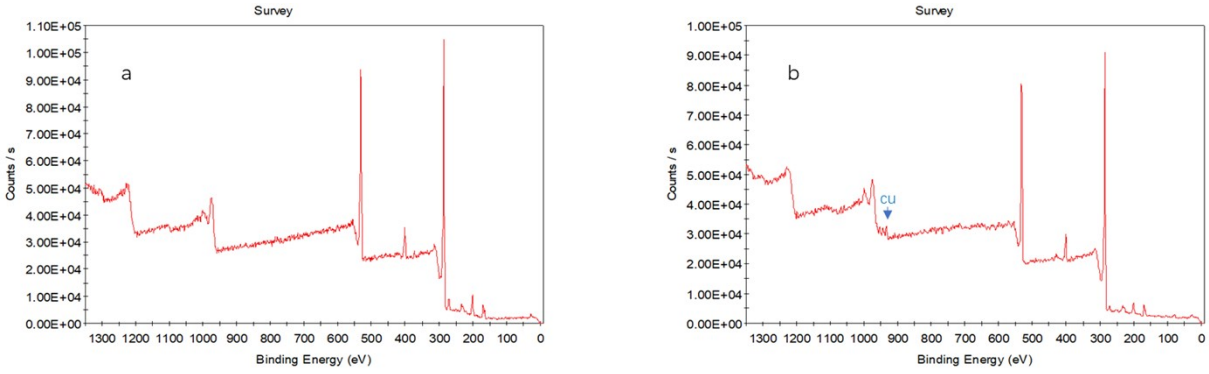

Fig. S1. XPS survey spectrum of DTC-AC(a) and Cu-loaded DTC-AC(b).