N-doped carbon xerogels as adsorbents for removal of heavy metal ions from aqueous solution

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Adsorption isotherms

Table S1. Parameters and correlation coefficients for the isotherm models

Models	Parameter	CX	NCX-100-2	NCX-150-2	NCX-200-2	NCX-150-1	NCX-150-1.5
Henry	k	0.106	0.118	0.131	0.103	0.109	0.115
	R^2	0.674	0.516	0.522	0.485	0.800	0.814
Freundlich	n	2.068	2.845	2.640	2.598	4.002	4.314
	K_F	3.665	10.387	9.576	7.710	16.778	20.071
	R^2	0.929	0.867	0.831	0.846	0.914	0.974

Adsorption kinetics

Intraparticle diffusion model

$$R = k_t t^m \quad \text{(S1)}$$

$$\ln R = m \ln t + \ln k_t \quad \text{(S2)}$$

where R is the percentage adsorption and t is the contact time (min). k_t and m are the intraparticle diffusion rate constant and exponent factor, respectively. The value of lnR were plotted against lnt, as shown in **Figure S1 (a).**

Pseudo-first-order model

$$q_t = q_e \cdot [1 - \exp(-k_1 t)] \quad \text{(S3)}$$

or $$\ln(q_e - q_t) = \ln q_e - k_1 t \quad \text{(S4)}$$

where q_t is the adsorbed amount of Pb ions at equilibrium and k_1 is the rate constant. The linear fit of $ln(q_e$-$q_t)$ against t can be described in **Figure S1 (b)**.

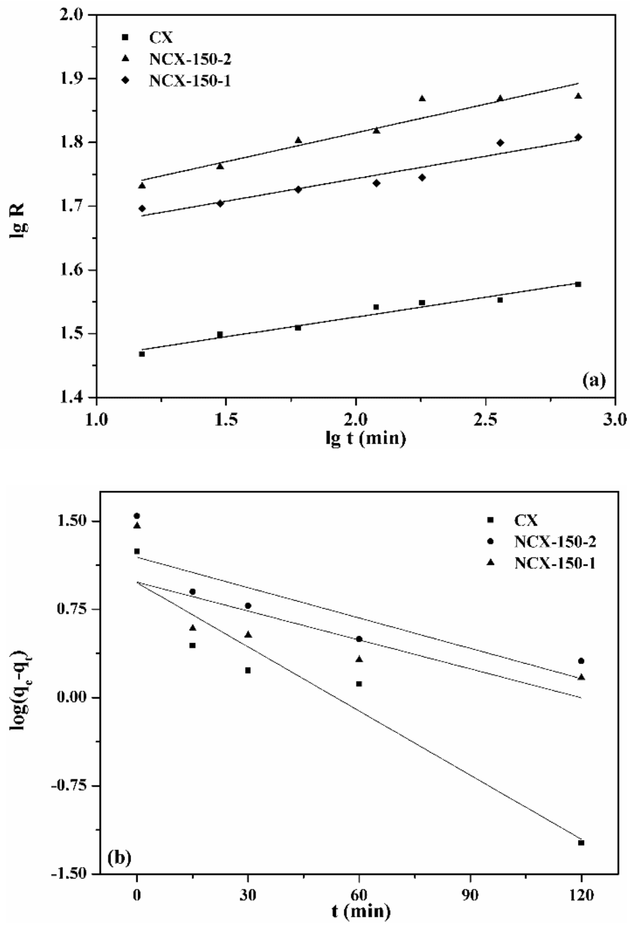

Figure S1. The adsorption kinetics including (a) intraparticle diffusion and (b) pseudo-first-order models.

Table S2. Parameters and correlation coefficients for the kinetic models

Models	Parameter	CX	NCX-150-2	NCX-150-1
Intraparticle diffusion	k_t (min^{-1})	25.221	43.104	39.982
	m	0.062	0.090	0.071
	R^2	0.956	0.902	0.909
Pseudo-first-order	k_1 (h^{-1})	6.777	4.995	7.195
	q_e (mg/g)	17.4	34.9	28.7
	R^2	0.976	0.956	0.945