

Table S1. Theoretical Isothermal fitting experimental results.

Isothermal Model	Adsorbent	Metal ion	Parameter (unit)	Value
Freundlich	CS	Cu ²⁺	n	2.5
			k	7.1
			R ²	0.867
			ARE	13.9
		Pb ²⁺	n	2.4
			k	4.1
	R ²		0.851	
	ARE		13.9	
	CS-g-TA	Cu ²⁺	n	2.4
			k	7.0
			R ²	0.891
			ARE	15.2
Pb ²⁺		n	2.4	
		k	5.2	
	R ²	0.88		
	ARE	12.6		
Temkin	CS	Cu ²⁺	A	2.3
			B	25
			R ²	0.978
			ARE	3.7%
		Pb ²⁺	A	2.5
			B	9.7
	R ²		0.985	
	ARE		4-0%	
	CS-g-TA	Cu ²⁺	A	2.0
			B	26
			R ²	0.979
			ARE	5.1%
Pb ²⁺		A	2.6	
		B	15.2	
	R ²	0.990		
	ARE	4.7%		

¹ fitting coefficient.