

Ion Exchange Induced Removal of Pb(II) by MOF-Derived Magnetic Inorganic Sorbents

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Supporting information

Table S1. Comparison of maximum adsorption Capacities (mg g^{-1}) with various adsorbents for removal of Pb(II)

Adsorbent sample	Adsorption capacity (mg g^{-1})	Reference
Fe_3O_4	36.01	1
amino-functionalized $\text{Fe}_3\text{O}_4@/\text{SiO}_2$	111.9	2
$\text{ZnO}@/\text{SiO}_2@/\text{Fe}_3\text{O}_4/\text{C}$	54.6	3
ZnO nanosheets	6.7	4
ZnO nanoparticles	50.0	5
Modified-ZnO nanopowders	61.2	6
Grapheme-ZnO	23.42	7
nano- TiO_2	30.8	8
Nano Iron oxides	71.464	9
Nano-CuO	188.67	10
Polyethersulfone/hydrous manganese dioxide	204.1	11
Modified inorganic mesoporous silica	200.80	12
Amino siloxane oligomer-linked graphene oxide	312.5	13
PVA/PAA gel	194.99	14

trioctylmethyl ammonium carboxymethylated chitosan	143.3	15
ZnO/ZnFe ₂ O ₄ /C	344.83	this work

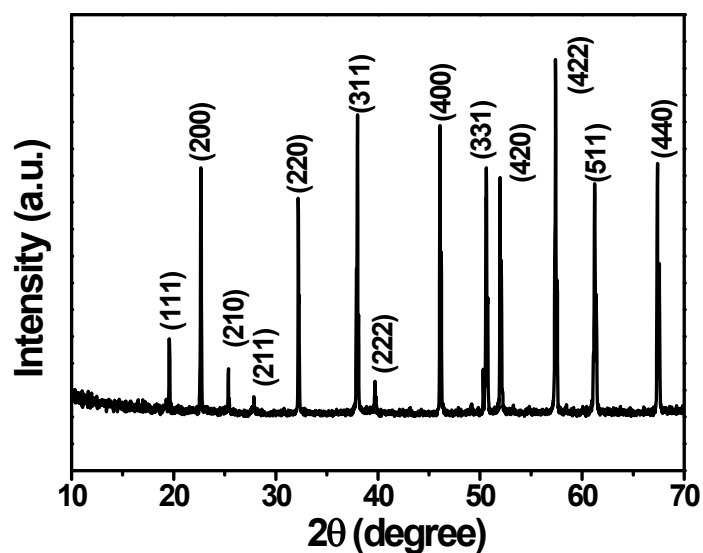


Figure S1. XRD pattern of Pb(NO₃)₂

Table S2. The intensity ratios of main diffraction peaks for ZnO and ZnFe₂O₄ before and after Pb(II) adsorption according to the XRD patterns of ZnO/ZnFe₂O₄/C and ZnO/ZnFe₂O₄/C-Pb.

	ZnO				ZnFe ₂ O ₄ /ZnO
	I ₍₁₀₀₎ /I ₍₁₀₁₎	I ₍₀₀₂₎ /I ₍₁₀₁₎	I ₍₁₀₂₎ /I ₍₁₀₁₎	I ₍₁₁₂₎ /I ₍₁₀₁₎	I _(311-ZnFe₂O₄) /I _(101-ZnO)
ZnO/ZnFe ₂ O ₄ /C	0.728	0.405	0.172	0.191	0.393
ZnO/ZnFe ₂ O ₄ /C-Pb	0.758	0.390	0.174	0.190	0.472
	ZnFe ₂ O ₄				
	I ₍₂₂₀₎ /I ₍₃₁₁₎	I ₍₀₁₂₎ /I ₍₃₁₁₎			
ZnO/ZnFe ₂ O ₄ /C	0.291	0.222			
ZnO/ZnFe ₂ O ₄ /C-Pb	0.297	0.227			

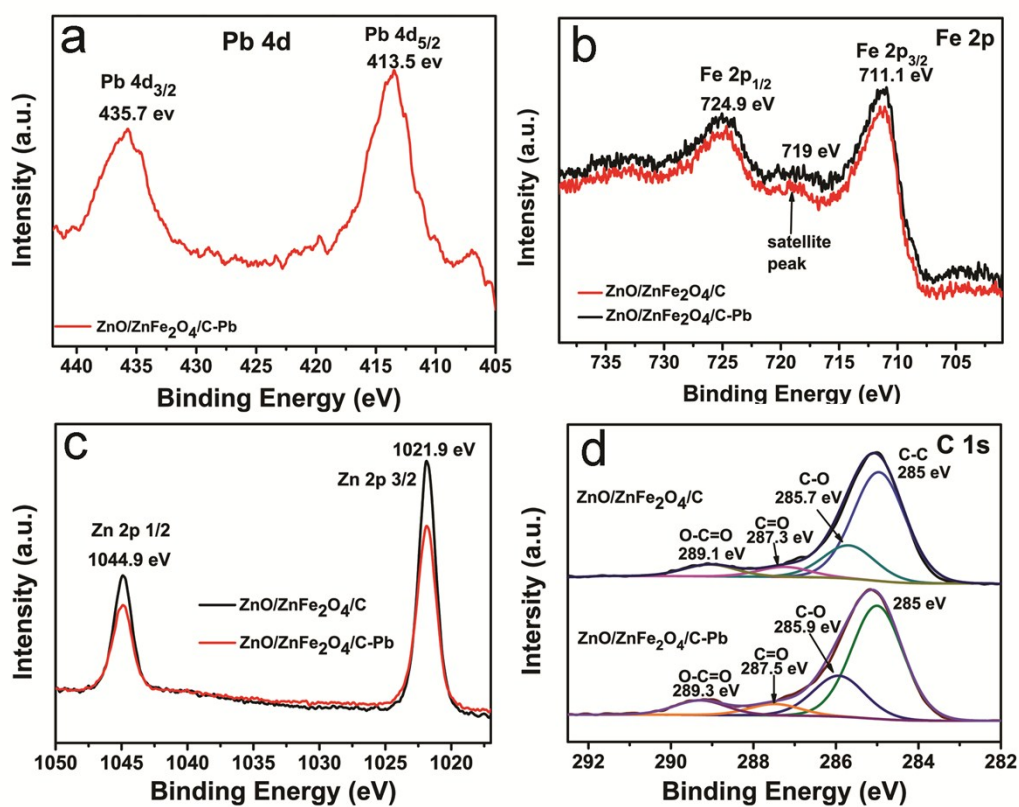


Figure S2. XPS spectra of ZnO/ZnFe₂O₄/C and ZnO/ZnFe₂O₄/C-Pb. (a) Pb 4d, (b) Fe 2p, (c) Zn 2p, (d) C 1s.

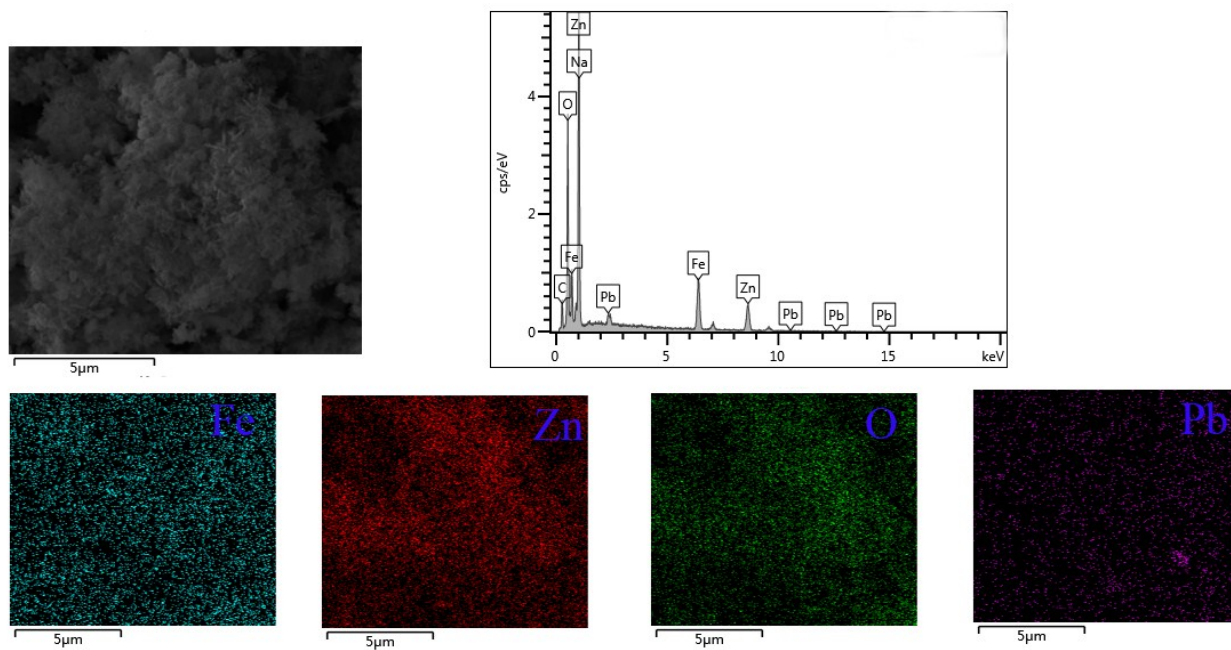


Figure S3. EDS and mapping images of ZnO/ZnFe₂O₄/C-Pb.

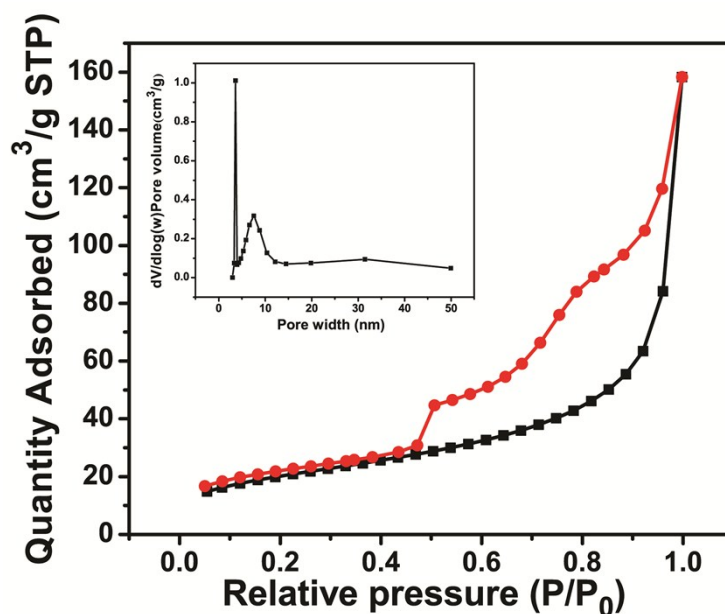


Figure S4. N₂ adsorption-desorption isotherm and the pore-size distribution curve of

ZnO/ZnFe₂O₄/C

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