*Supporting information for*

Highly efficient adsorption of Pb(II) by cubic nanocrystals in aqueous solution: behavior and mechanism

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**Text S1.** **Adsorption experiments**

For the pH effect experiment, an 800 mg$∙$L-1 Pb(Ⅱ) solution was adsorbed with 10 mg of sample and the pH was adjusted to 2-6 with 5 % HNO3 and a 0.01 M NaOH solution at 298 K, which was followed by shaking for 12 h.

For the kinetic adsorption experiments, an 800 mg$∙$L-1 Pb(Ⅱ) solution was adsorbed with 10 mg of the sample at 298 K and the pH was adjusted to 5.0, which was followed by shaking for 26 h.

For the supplementary experiment, an 800 mg$∙$L-1 Pb(Ⅱ) solution was adsorbed with 10 mg of the sample at 298 K and the pH was adjusted to 5.0, which was followed by shaking for 4 h.

**FIGURES**

Fig.S1 Plotting of ln(Kd) against 1/T on the KMFC.

****Fig.S2 Effects of pH on the adsorption of Pb(Ⅱ) by the KMFC

Fig.S3 TEM images of the KMFC under strong acid and alkali.

Fig.S4 FT-IR spectra of the KMFC under strong acid and alkali.



Fig.S5 The reusability of KMFC for the adsorption of Pb(II)

**TABLE**

**Table S1** FTIR spectral characteristics of KMFC prior to and following Pb(II) adsorption.

|  |  |
| --- | --- |
| KMFC |  |
| Prior to Adsorption | Following Adsorption | Difference | Assignment |
| 3433.03 | 3468.63 | -35.60 | O-H stretching |
| 2068.17 | 2040.43 | +27.74 | $C≡N$ stretching |
| 1629.30 | 1617.32 | +11.98 | O-H bending |
| 594.06 | 596.18 | 0 | Fe-CN stretching |
| 452.76 | 453.92 | 0 | Mn-CN stretching |