Supporting Information on

Removal of Pb(II) ions from aqueous solutions on few-layered graphene oxide nanosheets

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1. FTIR spectroscopy analysis of FGO before and after Pb(II) adsorption

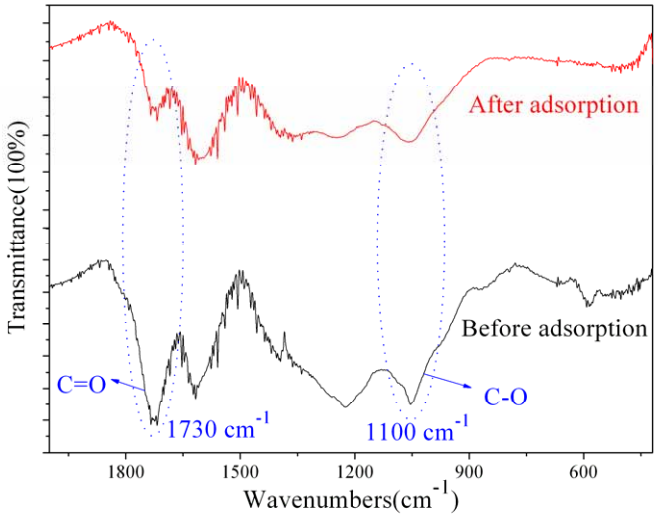

Figure S1. FTIR spectra of FGO before and after adsorption of Pb(II) ions.

2. Desorption of Pb(II) from FGO

The desorption of Pb(II) from FGO was investigated at different pH values. After the sorption equilibrium, half of the supernatant was pipetted out and an equal volume of background electrolyte solution with the same pH value was added. Then the mixture was shaken and centrifugation was done under the same conditions as in the

sorption experiments. The results are listed in Table S1. Part of Pb(II) can be desorbed from FGO at low pH values, and the desorption percentage of Pb(II) from FGO decreases with increasing pH values, which is attributed to the physical sorption of Pb(II) at low pH and strong surface complexation at high pH values. The sorption of Pb(II) on FGO is irreversible. About 30.4% Pb(II) can be desorbed from FGO at pH 1.88, whereas only <10% Pb(II) can be desorbed from FGO at pH>7.9.

Table S1. Desorption percentage of Pb(II) from FGO at different pH values in 0.01M $NaClO_4$ solutions.

pH	1.88	3.27	4.39	6.15	7.91	11.00
Desorption (%)	30.4	26.1	23.7	17.4	8.8	5.6

3. EXAFS Data Collection and Analysis

Pb L_{III}-edge EXAFS spectra at 13035.2 eV were recorded at room temperature at Shanghai Synchrotron Radiation Facility (SSRF, China) in fluorescence modes. The electron beam energy was 3.5 GeV and the mean stored current was 300 mA. A superconductor wiggler with a maximum magnetic field B_0 of 6 T inserted in the straight section of the storage ring was used. The energy of *X*-ray was detuned by using a fixed-exit double-crystal Si (111) monochromator. A multi-element pixel high purity Ge solid-state detector was used to collect the fluorescence signal. EXAFS data analysis was performed with the Athnea software. The EXAFS oscillations were isolated from the raw, averaged data by removal of the pre-edge background, approximated by a first-order polynomial. The extracted EXAFS spectra, obtained via

spline fitting techniques and normalized using a victoreen function, were Fourier transformed (*FT*). The curve-fitting analysis was carried out using the IFEFFIT engine-based interface, Six-PACK. The theoretical scattering phases and amplitudes used in data analysis were calculated with the scattering code FEFF7 using the crystal structures of Pb^{2+} and $Pb(OH)_2$.