Supporting Information on

Few-layered graphene oxide nanosheets for heavy metal ion pollution management

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Preparation of few-layered graphene oxide nanosheets. Few-layered graphene oxide nanosheets were prepared using the modified Hummers method from the flake graphite (average particle diameter of 20 mm, 99.95% purity, Qingdao Tianhe Graphite Co. Ltd., China) using concentrated H_2SO_4, $KMnO_4$ and 30% H_2O_2 as oxidants, and the desired products were rinsed with deionized water. Briefly, 4.0 g of graphite and 3.0 g of $NaNO_3$ were placed in a flask. Then, 300 mL of H_2SO_4 was added with stirring in an ice-water bath, and 18.0 g of $KMnO_4$ was slowly added over about 2 h. The stirring was continued for 2 h in the ice-water bath and continually stirred for 5 d at room temperature. Then 560 mL of 5 wt % H_2SO_4 was added over about 2 h with stirring at T = 98±1 °C, and the mixture was further stirred for 2 h at 98±1 °C. After the temperature was reduced to 60 °C, 12 mL of H_2O_2 (30 wt %) was added in the suspension, and the mixture was stirred for 2 h at room temperature. After centrifugation at 8000 rpm, the solid phase was redispersed using vigorous stirring and bath ultrasonication for 30 min at the power of 140 W. The centrifugation and ultrasonication were recycled for several times, and then the sample was rinsed with Milli-Q water until the solution was neutral. The desired products were dried in a vacuum tank at room temperature, and thus the few-layered graphene oxide nanosheets were derived. Thus derived samples were characterized and used in the experiments for the removal of Cd(II) and Co(II) ions from aqueous solutions.

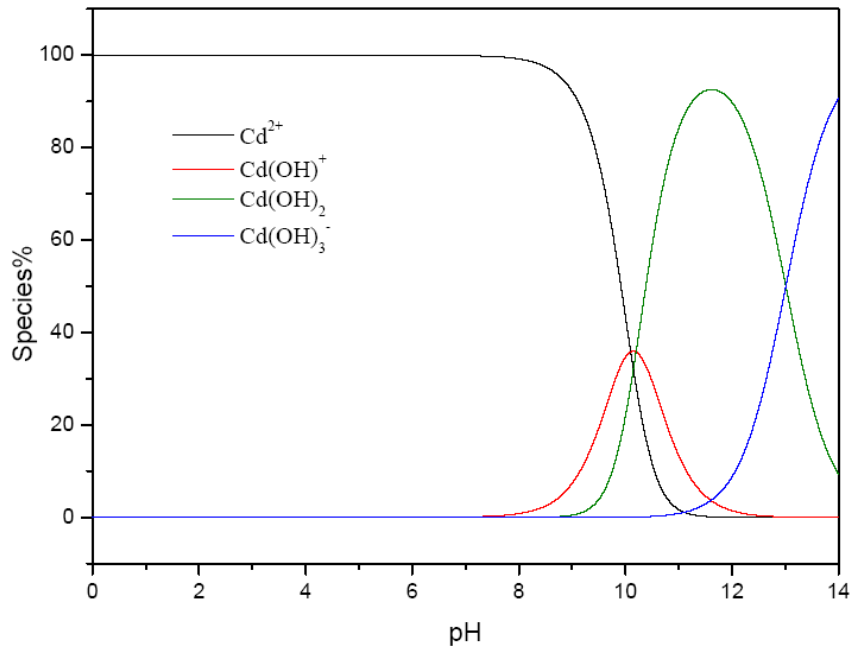

FIGURE S1. Distribution of Cd(II) species as a function of pH based on the equilibrium constants.

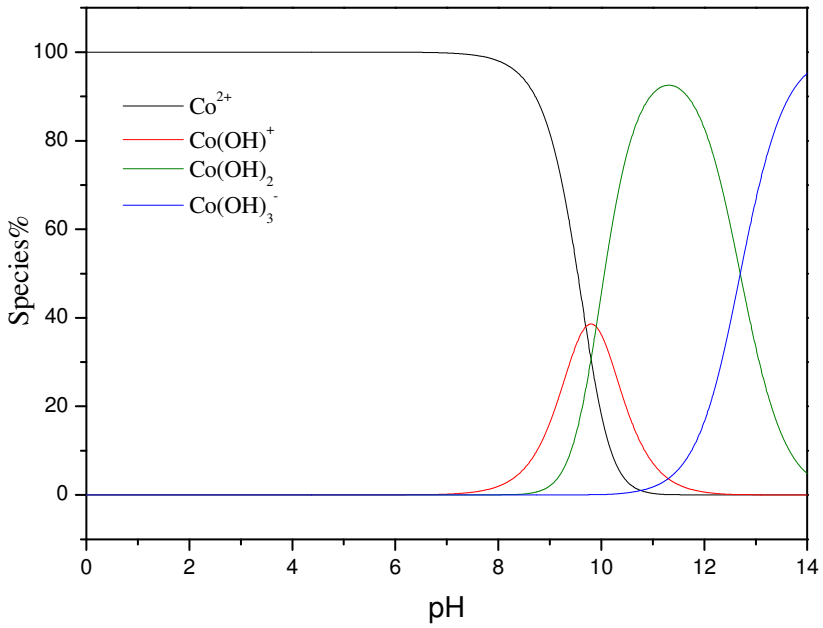

FIGURE S2. Distribution of Co(II) species as a function of pH based on the equilibrium constants.

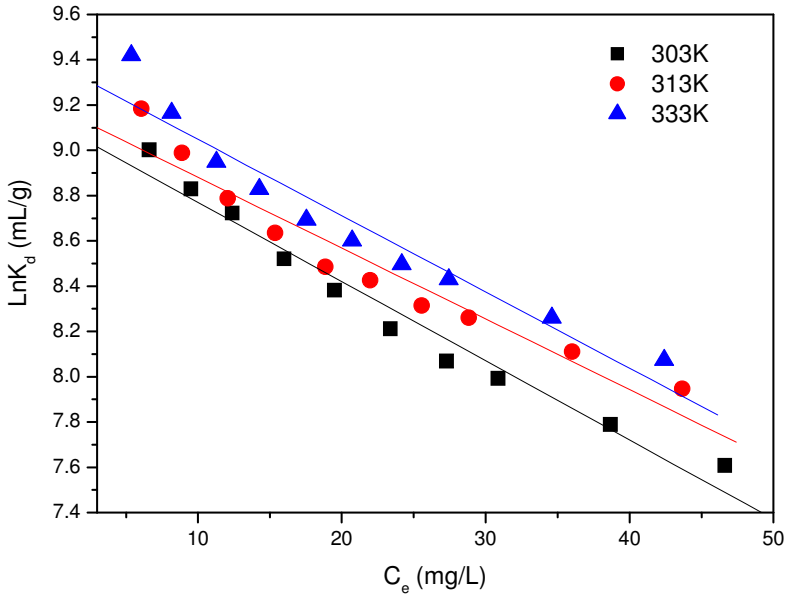

FIGURE S3. Linear plots of $\ln K_d$ vs. C_e for Cd(II) sorption on graphene oxide nanosheets at different temperatures. m/V=0.1g/L, pH = 6.0 ± 0.1, I=0.01M $NaClO_4$.

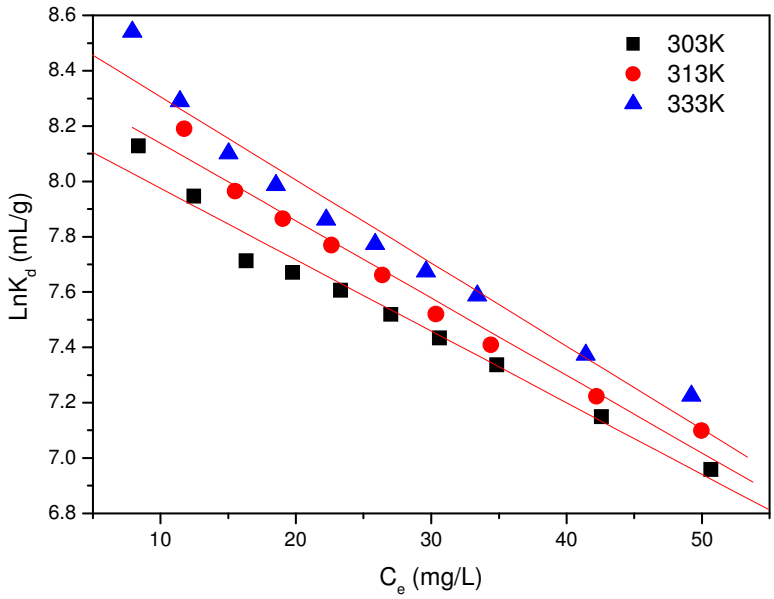

FIGURE S4. Linear plots of $\ln K_d$ vs. C_e for Co(II) sorption on graphene oxide nanosheets at different temperatures. m/V=0.1g/L, pH = 6.0 ± 0.1, I=0.01M $NaClO_4$.