

Supplementary Material

Characterization of materials, adsorption isotherms, kinetics

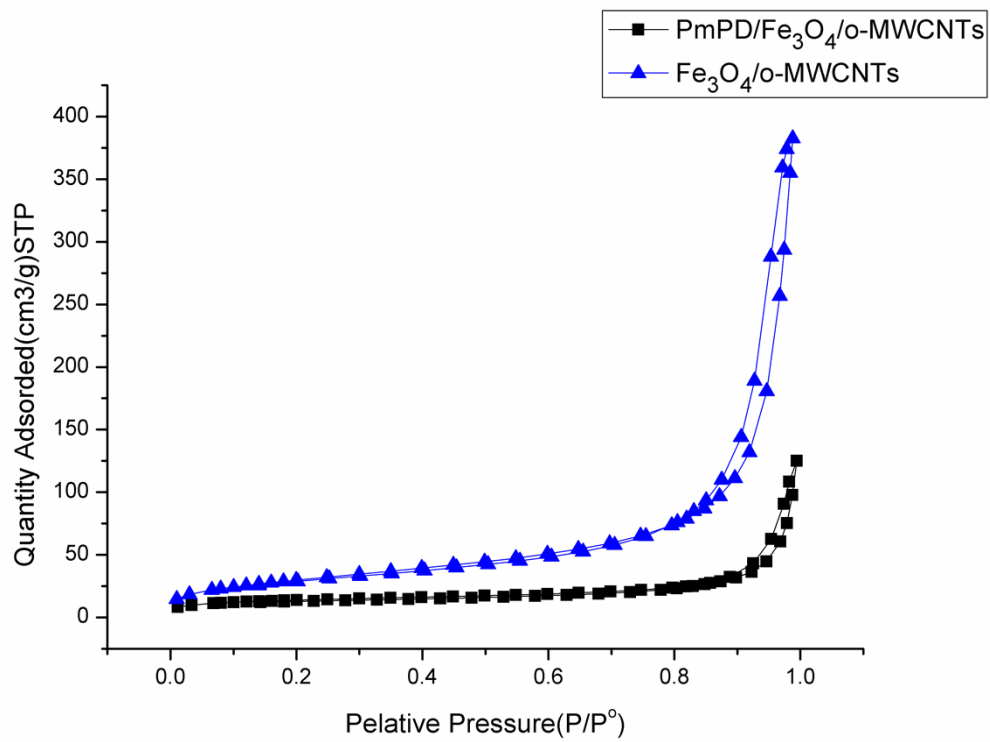


Fig. S1. BET measurements for Fe₃O₄/o-MWCNTs and PmPD/Fe₃O₄/o-MWCNTs.

2. Adsorption Isotherms

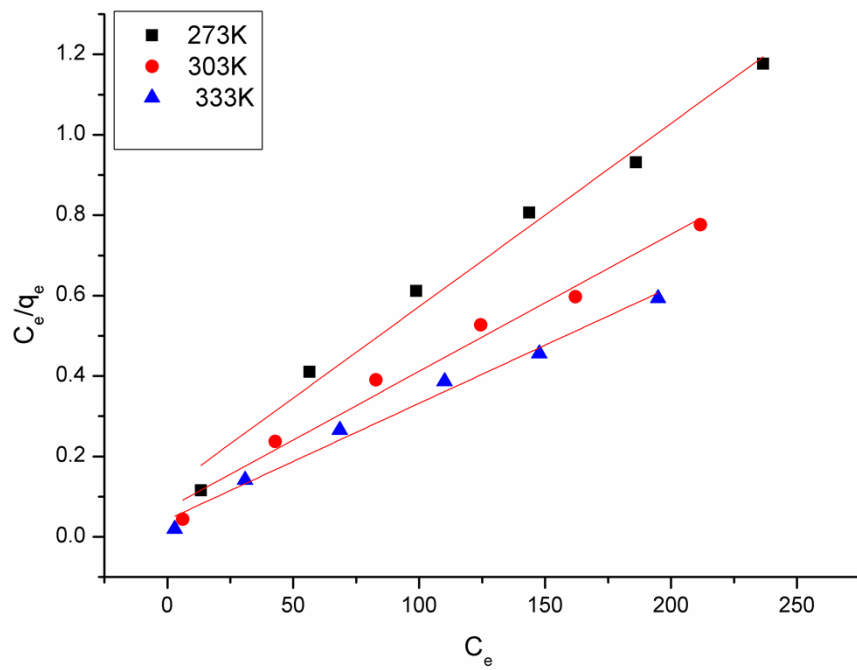


Fig. S2. Langmuir adsorption isotherm plots for chromium adsorption onto PmPD/Fe₃O₄/o-MWCNTs at different temperatures.

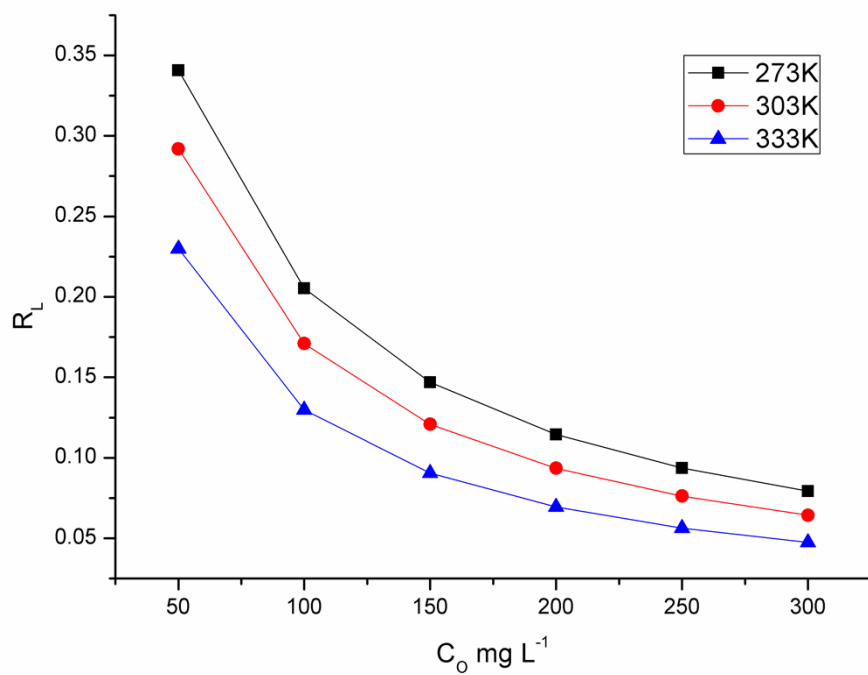


Fig. S3. Separation factor of chromium ions adsorbed onto PmPD/ Fe_3O_4 /o-MWCNTs at different temperatures.

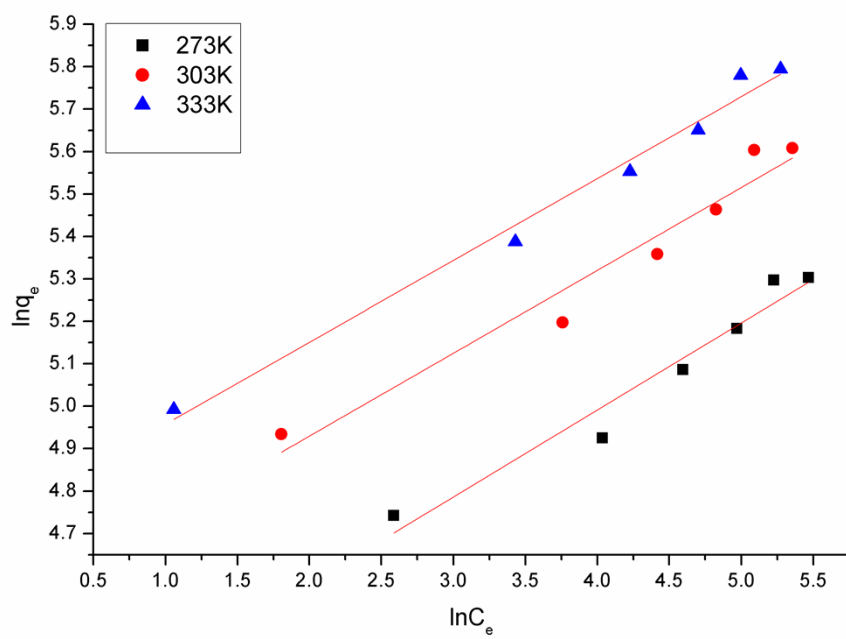


Fig. S4. Freundlich adsorption isotherm plots for chromium adsorption onto PmPD/Fe₃O₄/o-MWCNTs at different temperatures.

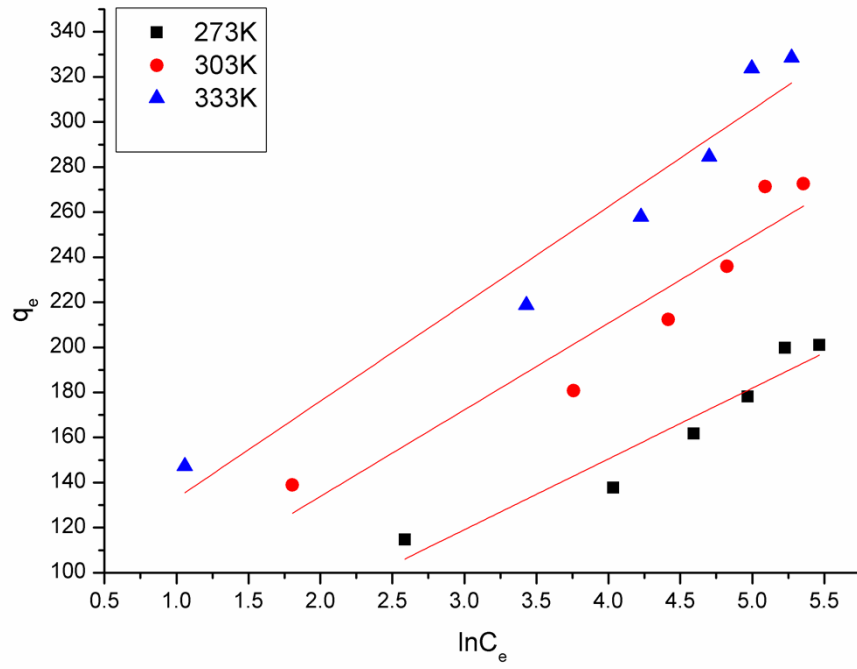


Fig. S5. Temkin adsorption isotherm plots for chromium adsorption onto PmPD/Fe₃O₄/o-MWCNTs at different temperatures.

3. Adsorption Kinetics

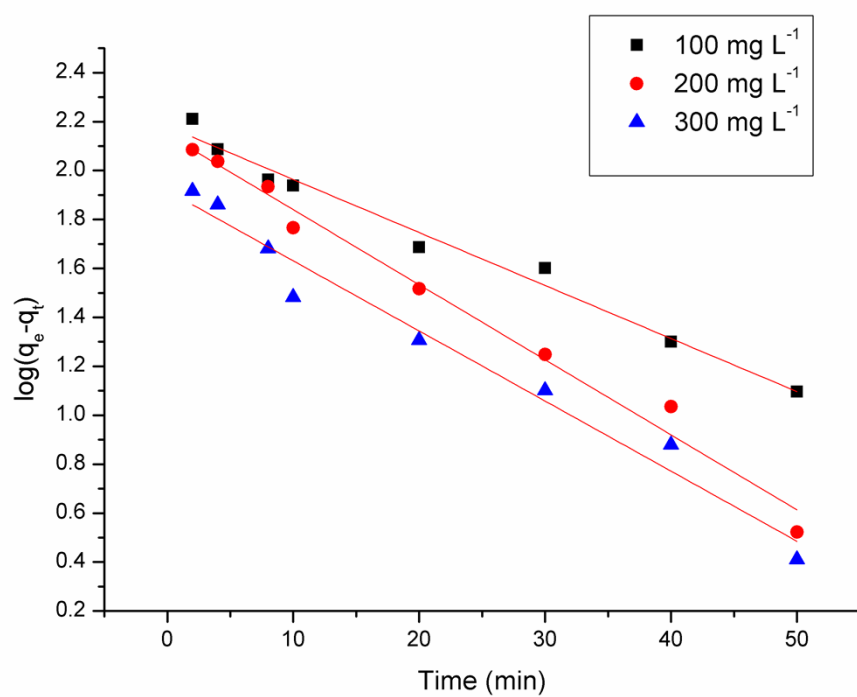


Fig. S6. Plot of the pseudo-first-order kinetic model for chromium on PmPD/Fe₃O₄/o-MWCNTs at different initial solution concentrations.

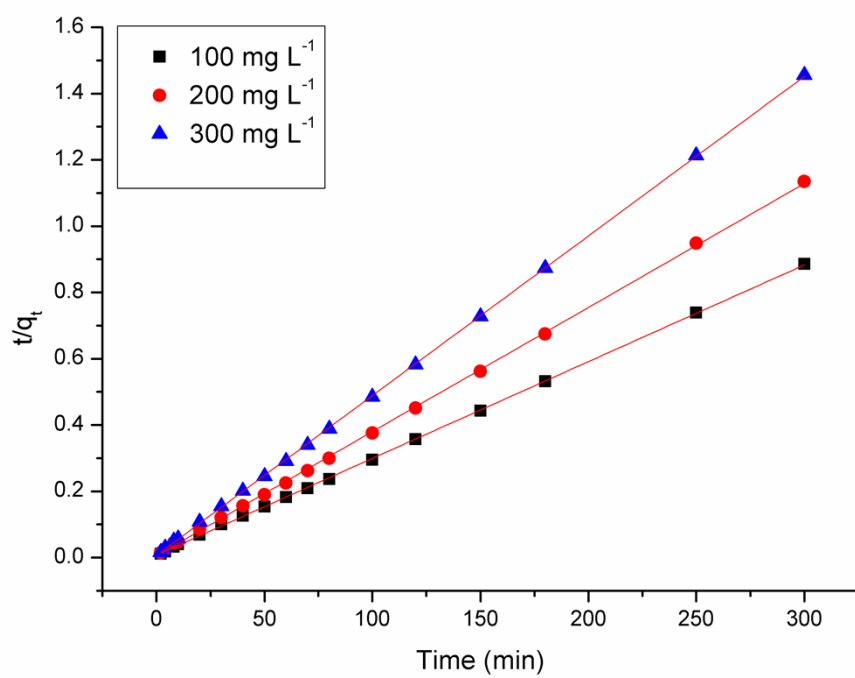


Fig. S7. Plot of the pseudo-second-order kinetic model for chromium on PmPD/Fe₃O₄/o-MWCNTs at different initial solution concentrations.