Supplementary Information

Experimental Section

Figure S1. XRD patterns of $Mn_3[Co(CN)_6]_2 \cdot nH_2O$ formed at different conditions a) no ethanol added to the reaction system with other experimental parameters kept constant; (b) the ratio of ethanol/water in reaction system is 1:2 with other experimental parameters kept constant; (c) no PVP added to the reaction system with other experimental parameters kept constant.

Figure S2. FT-IR spectra of $Mn_3[Co(CN)_6]_2 \cdot nH_2O$ formed at different conditions a) no ethanol added to the reaction system with other experimental parameters kept constant; (b) the ratio of ethanol/water in reaction system is 1:2 with other experimental parameters kept constant; (c) no PVP added to the reaction system with other experimental parameters kept constant.

Figure S3. (a) Optical photograph of the mixture containing the $Mn_3[Co(CN)_6]_2 \cdot nH_2O$ nanocubes and Pb^{2+}. (b) Magnetic separation of $Mn_3[Co(CN)_6]_2 \cdot nH_2O$ nanocubes. Because the magnetic field strength of the edge of the magnet (0.3 T) is much stronger than that of the center (≈0 T), the white precipitates were mainly located in the edge of centrifugal tube (the white box in the b).

Experimental Section：

The Removal of Pb^{2+} in the presence of $Mn_3[Co(CN)_6]_2 \cdot nH_2O$ nanocubes

Typically, the nanocubes suspension (1 g/L, 4 mL) dissolved in distilled water and aqueous solution (100mg/L, 1 mL) of Pb^{2+} were transferred to the centrifugal tube (10 mL). After uniform oscillated with 2h using a shaker ensure sufficient interaction between nanocubes and Pb^{2+}, the nanocubes were separated from the solution with the help of a 0.3 T magnet. The amount of Pb^{2+} in solution was characterized by Plasma-atomic emission spectroscopy. The initial concentration of Pb^{2+} in the system was 20μg/mL, while the concentration of Pb^{2+} was 2.775μg/mL after adsorbing by $Mn_3[Co(CN)_6]_2 \cdot nH_2O$ nanocubes according to the Plasma-atomic emission spectroscopy. Therefore, the removal efficiency of Pb^{2+} can be calculated to 86%

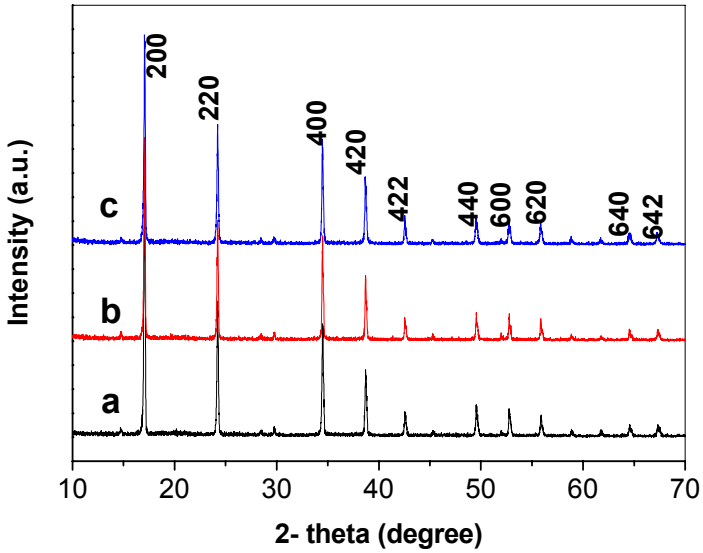

Figure S1.

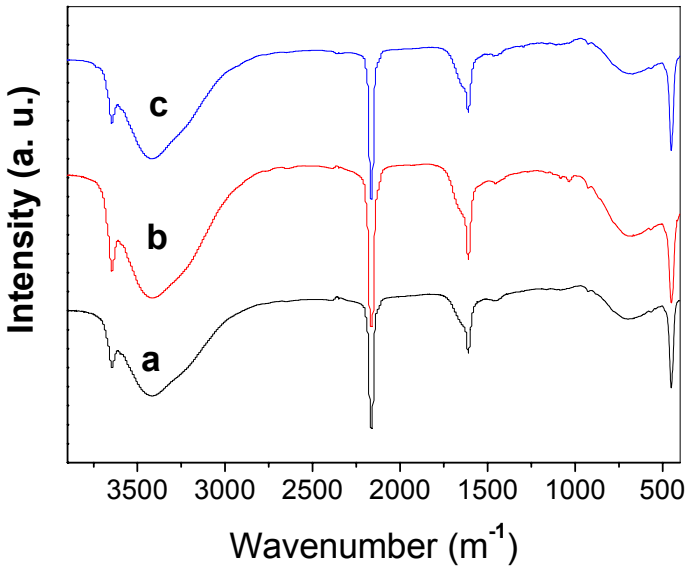

Figure S2.

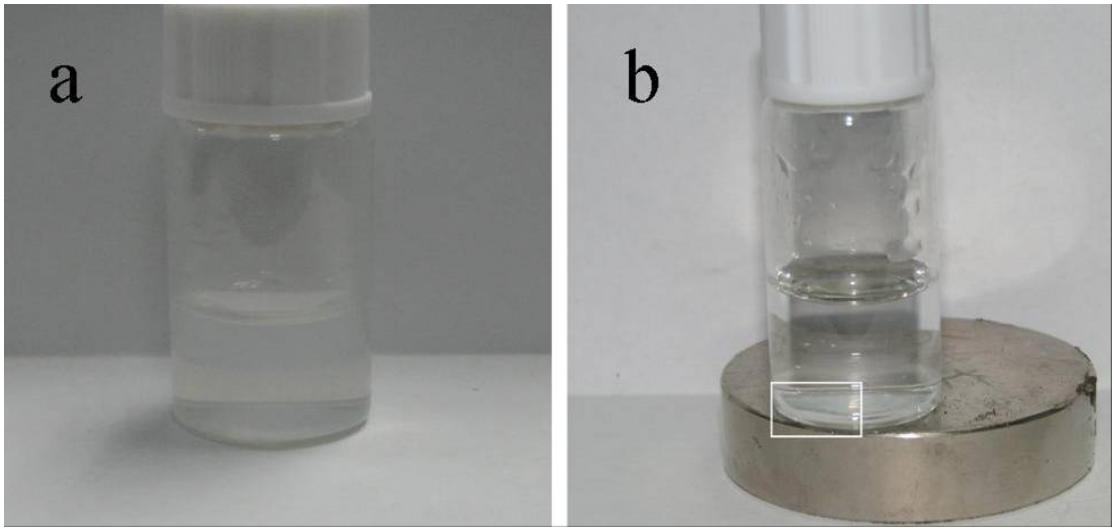

Figure S3.