

Synthesis of magnetic hollow Prussian blue nanocomposites for Removal of radioactive cesium

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We elucidated the ability of Hollow Prussian blue-coated magnetic nanoparticles to removal cesium from radioactive contaminated waste. its were prepared by a layer-by-layer assembly method. The morphology, structure and physical properties of it was investigated as was their ability to magnetically removal cesium. Prussian blue(PB) has a face-centered cubic lattice. Moreover, its low-cost and high stability make its use feasible for large-scale application. PB is a good absorbent for the removal of radioactive Cs. Hollow prussian blue(HPB) particles by utilizing a controlled self-etching reaction in the presence of Polyvinylpyrrolidone (PVP). Hollow particles with nanoporous have attracted great interest because the large pore volumes and high surface areas. However, PB prepared by a precipitation method is usually in the form of a very fine powder, so it is unsuitable for column loading and it is difficult to separate it from aqueous solutions by filtration or centrifugation. Magnetic separation, which has been used for the removal of heavy metal and organic pollutants, is a quick and easy method to recover absorbent.