

## Organophosphate-comprised porous organic polymers for effective removal of heavy rare earth elements in aqueous solutions

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Owing to the ever-increasing demand on the rare earth ions, their recovery from wastewater has gained considerable interest. We have developed two novel organophosphate-comprised porous organic polymers (BPOP-1 and BPOP-2) with large surface areas through a facile one pot reaction strategy. Subsequently, the BPOPs were applied for the adsorptive separation of four heavy rare earth elements (HREEs),  $\text{Eu}^{3+}$ ,  $\text{Gd}^{3+}$ ,  $\text{Tb}^{3+}$ , and  $\text{Dy}^{3+}$ . Remarkably, both BPOPs showed among of the highest HREEs adsorption capacities reported.. We have proposed a plausible adsorption mechanism for HREEs capture over the BPOP adsorbent. The adsorbents showed good reusability for 10 successive cycles without any significant deterioration in adsorption capacities.

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