

Supplementary Information (SI)

Synthesis and application of a highly selective molecularly imprinted adsorbent based on multi-walled carbon nanotubes for selective removal of perfluorooctanoic acid

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1 **Characterization**

2 The methods for characterization of specific surface area and ζ potentials were performed based
3 on our previous study , and 3 repeat testing for specific surface area have been done[1,2]. The data
4 presented in our study were described as the average \pm standard error. The average specific surface area
5 of MWCNTs, MWCNTs@MIPs and MWCNTs@NIPs were 101.2, 82.4 and 78.5 m²/g, respectively.
6 The average pore diameters for these three nanoparticles were similar at about 40 nm, with which the
7 pore size distributions concentrate in the mesopores (2-50 nm in size).

8 The zeta potentials of MWCNTs@MIPs and MWCNTs@NIPs decreased with increasing of the
9 solution pH (Fig. S1). The isoelectric points (IEPs) of the MWCNTs@MIPs and MWCNTs@NIPs
10 were found to be 4.21 and 3.62, respectively. The polymers are positively charged at pH values below
11 the IEP and negatively charged above this point.

Table S1 The surface area and pore size distribution of the MWCNTs and MWCNTs@MIPs (NIPs).

Sorbents	Surface area (m ² /g)	Pore volume (cm ³ /g)	Average pore diameter (nm)
MWCNTs	101.2±2.51	0.215±0.005	40.82±0.730
MWCNTs@MIPs	82.4±0.590	0.132±0.002	40.28±0.084
MWCNTs@NIPs	78.5±0.928	0.121±0.003	36.267±0.368

Fig. S1 Zeta potentials of MWCNTs@MIPs and MWCNTs@NIPs.

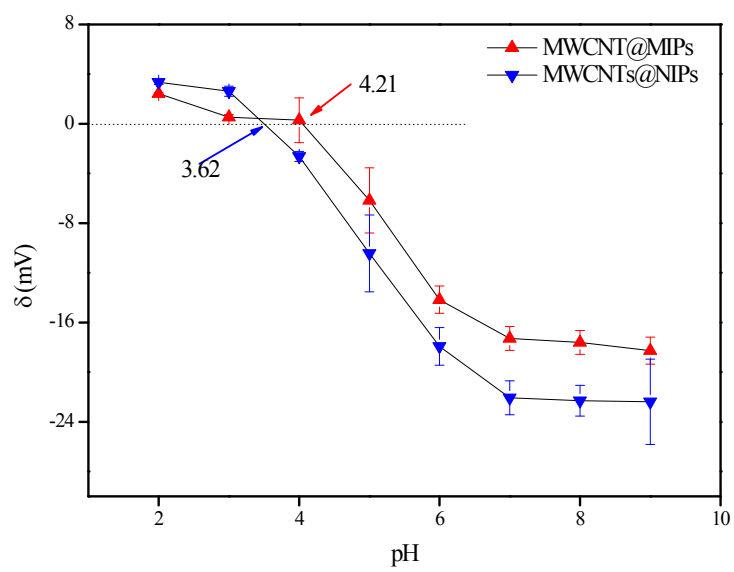
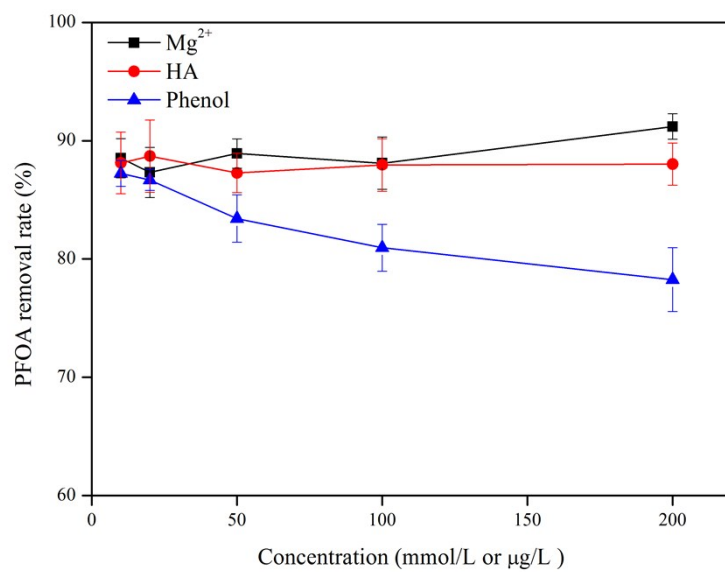


Fig. S 2 The adsorption of PFOA onto MWCTS@MIPs at the presence of Mg^{2+} , HA and phenol



References

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- [2] F. Cao, L. Wang, X. Ren, H. Sun, Synthesis of a perfluorooctanoic acid molecularly imprinted polymer for the selective removal of perfluorooctanoic acid in an aqueous environment, *Journal of Applied Polymer Science*, 133 (2016).