Supporting Information

Self-assembly of graphene oxide/$MnFe_2O_4$ motor by coupling shear force with capillarity for removal of toxic heavy metals

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It's noticed that the motor started from the right side of the channel and arrived at the opposite side within 7s. With the help of magnet, the motor subsequently swam back to the position where was started. The moving trajectories were shown by red arrow.

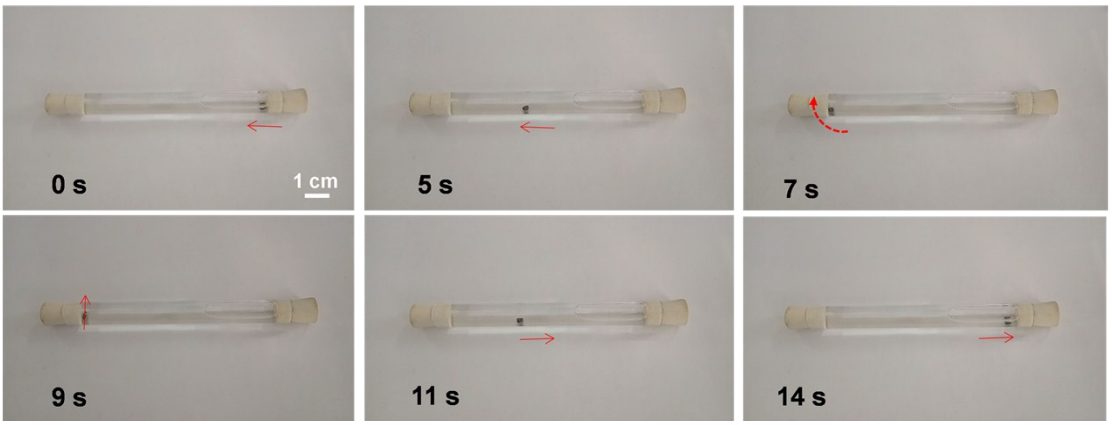

Fig. SP1 Photo images of GO/$MnFe_2O_4$ motor controlled by magnetic guidance swimming in a straight channel.

As shown in Fig. SP2, SEM images of the recovered GO/$MnFe_2O_4$ motor after its reusability suggest that the morphology and structure of the motor are similar to the original ones shown in Fig. 4, demonstrating good recycling stability of GO/$MnFe_2O_4$ motor as the adsorbent for removal of heavy metal ions.

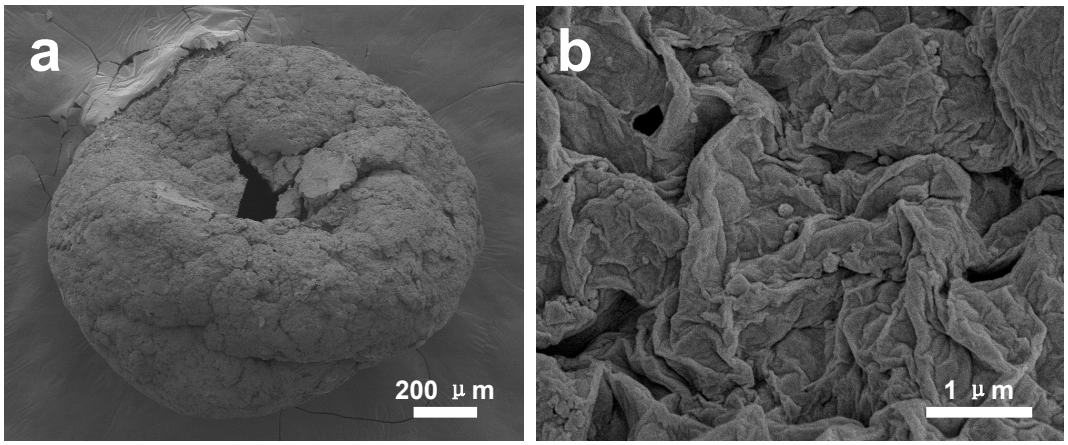

Fig. SP2 SEM images of (a) the front surface and (b) inner wall of the recycled GO/$MnFe_2O_4$ motor after ten runs

Table S1 Comparison of Adsorption Capacities between Various Adsorbents

	Adsorbent	Adsorption capacity (mg g^{-1})	References
Pb^{2+}	**GO/$MnFe_2O_4$**	**100**	**This work**
	Gl-RGO monoliths	101.1	[1]
	GO/chitosan composite	76.9	[2]
	Fe_3O_4 microrose	45.4	[3]
Cd^{2+}	**GO/$MnFe_2O_4$**	**100**	**This work**
	MGO	91.29	[4]
	Fe_3O_4/MnO_2 nanocomposite	53.2	[5]
	Fe_3O_4/cyclodextrin polymer	27.70	[6]

References

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