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Electronic Supplementary Information

Highly selective detection of Hg^{2+} and MeHgI by di-pyridin-2-yl-[4-(2-pyridin-4-yl-vinyl)-phenyl]-amine and its zinc coordination polymer

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Table of Contents

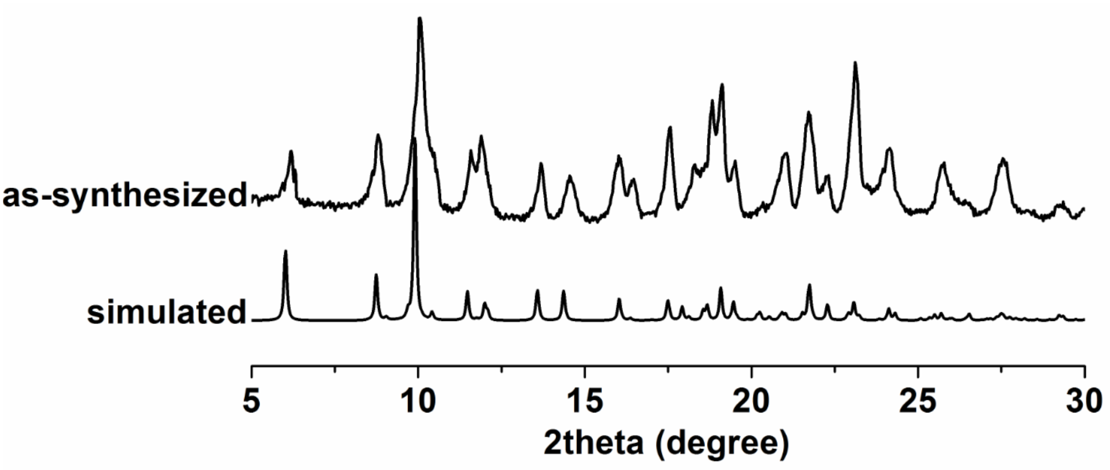


Fig. S1 PXRD patterns for **1**.

The powder X-ray diffraction (PXRD) measurements were carried out on a PANalytical X'Pert PRO MPD system (PW3040/60) using Cu-Kα radiation (λ = 1.54050 Å). The data were collected at room temperature in flat-plate mode in a 2θ range of 5-30° with a scan speed of 20 °/min. The operating power was 40kV/40mA.

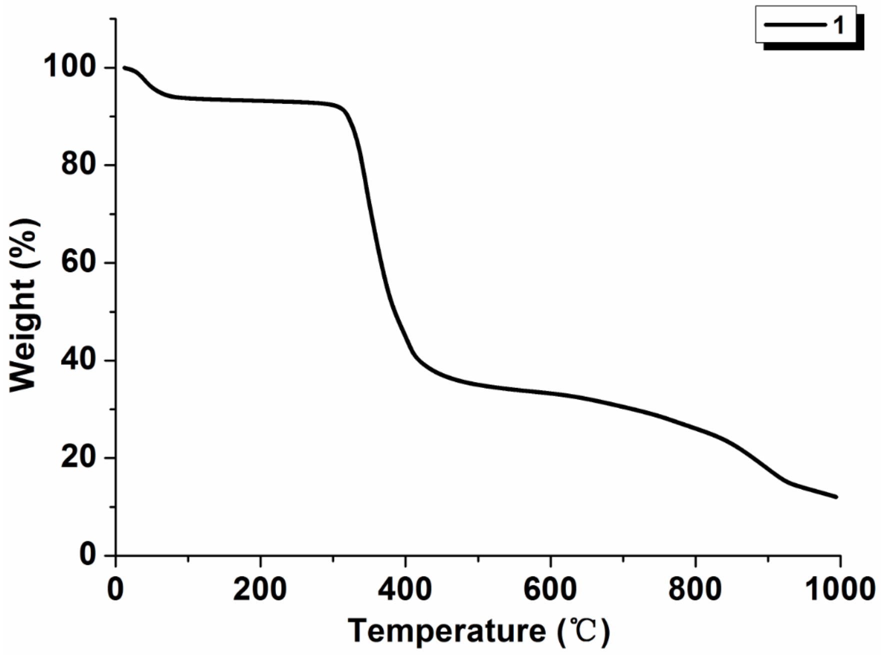
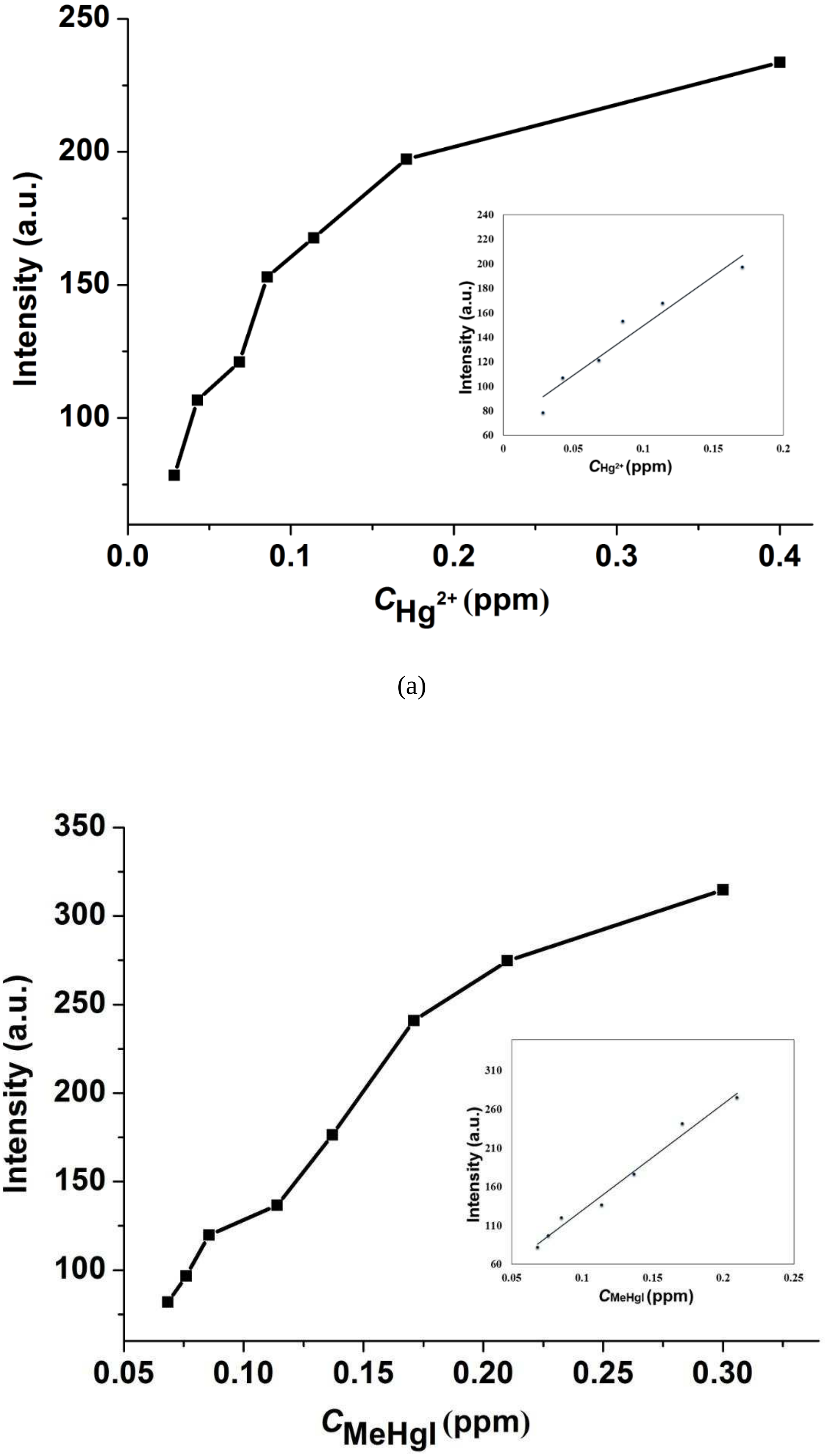


Fig. S2 The TGA curve for **1** (scan rate 5 °C/min)

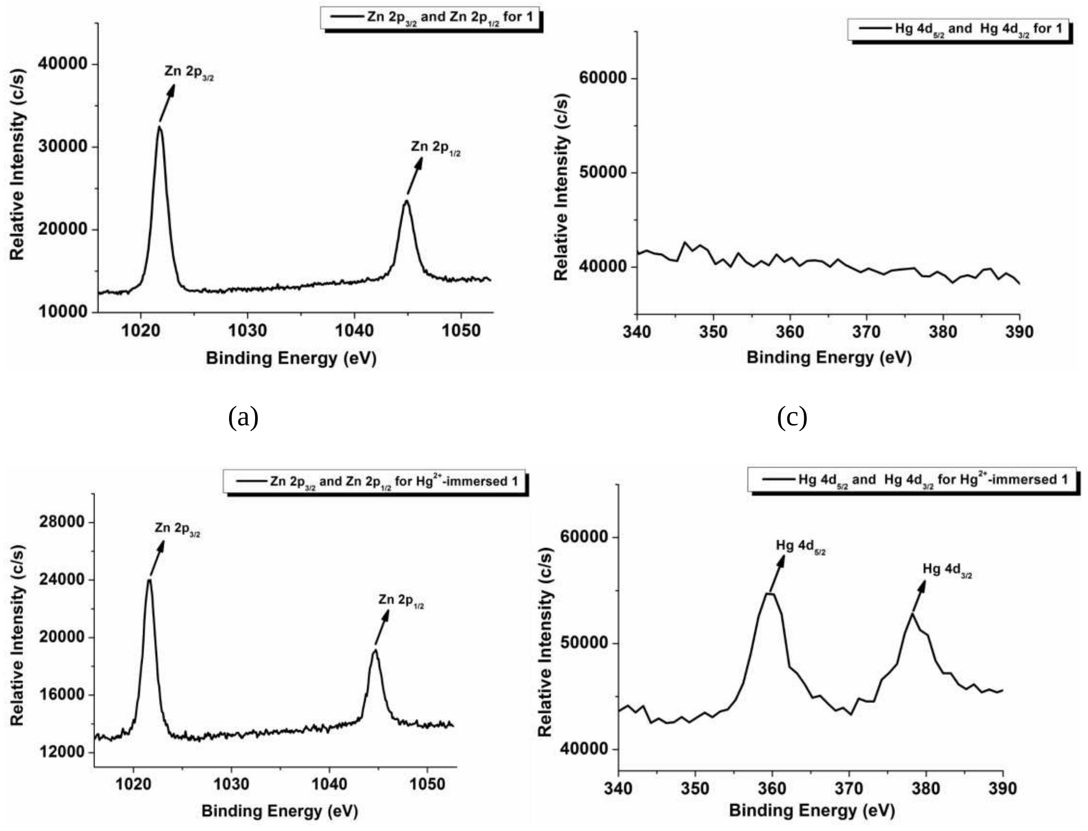
The framework stability of **1** was investigated by thermogravimetric analysis (TGA) under an ambient atmosphere (Fig. S2). The first weight loss from 20 °C to 70 °C corresponds to the loss of solvent molecules. The main weight loss produced in the temperature range 300–900 °C can be attributed to the decomposition of the organic linkers. The residual species was assumed to be ZnO (12.61% vs calcd. 12.92 %).



(a)

(b)

Fig. S3 Plot of the fluorescence intensity of **1** dispersed in water at different concentrations of (a) Hg^{2+}; (b) MeHgI. Inset: linear relation between the fluorescence intensity and the concentrations of (a) Hg^{2+} in the range of 0.02−0.17 ppm ($R^2 = 0.94$); (b) MeHgI in the range of 0.06−0.21 ppm ($R^2 = 0.98$).



(a) (c)

(b) (d)

Fig. S4 The XPS spectra for four samples. (a) The Zn $2p_{3/2}$ and Zn $2p_{1/2}$ core level spectrum for **1**; (b) The Zn $2p_{3/2}$ and Zn $2p_{1/2}$ core level spectrum for Hg^{2+}-immersed **1**; (c) The Hg $4d_{5/2}$ and Hg $4d_{3/2}$ core level spectrum for **1**; (d) The Hg $4d_{5/2}$ and Hg $4d_{3/2}$ core level spectrum for Hg^{2+}-immersed **1**.