

Electronic Supplementary Information (ESI)

1. Reagents and Chemicals

All chemicals used in this work are of AR or HPLC grade. 18 M Ω -cm deionized water (DIW) was produced with a water purification system (PCWJ-10, Pure Technology Co. Ltd, Chengdu, China). N, N-dimethylformamide (DMF), 1, 4-benzenedicarboxylate (BDC), FeCl₃•6H₂O, CCl₄ and ethanol were purchased from Kelong Chemical Reagent Co. Ltd. (Chengdu, China). Standard solutions of MeHg⁺, EtHg⁺, PhHg⁺ and Hg²⁺ in methanol (76.6 ppm) were obtained from National Institute of Metrology China (Beijing, China). Methanol was purchased from Amethyst Chemicals (J&K Scientific, China). All standards and stock solutions were stored at 4 °C in a refrigerator until use.

2. Instruments

A Uwave-1000 microwave reactor was purchased from Sineo Microwave Chemistry Technology Co. Ltd. (Shanghai, China). The fluorescence data were collected with an F-7000 fluorescence spectrometer (Hitachi, Japan) using a 390 nm optical filter. The PXRD patterns were obtained with an X'Pert Pro MPD (Philips, Netherlands) X-ray diffraction spectrometer using Cu_{K α} radiation. The SEM images were recorded on a JEOL JSM-7500F scanning electron microscope at 30.0 kV.

3. Figures and Captions

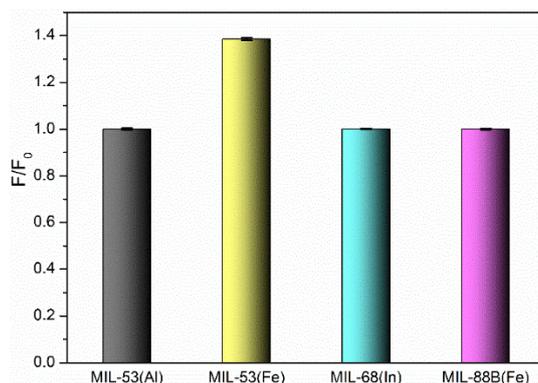


Fig. S1 FL intensities of the CCl₄ suspension prepared with four different MIL MOFs containing MgHg⁺ with the same concentration.

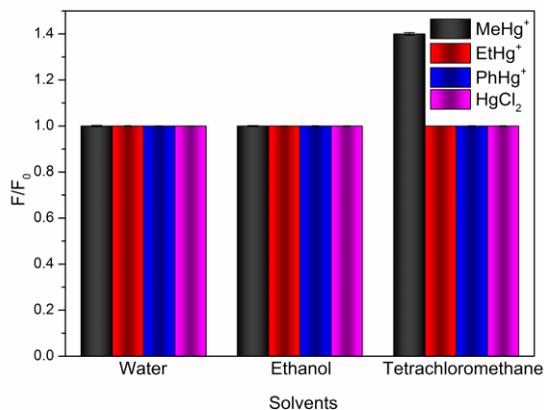


Fig. S2 FL intensity of MIL-53(Fe) suspension prepared with the dispersant of water, ethanol, or tetrachloromethane, with 500 ppb of Hg species added into each suspension.

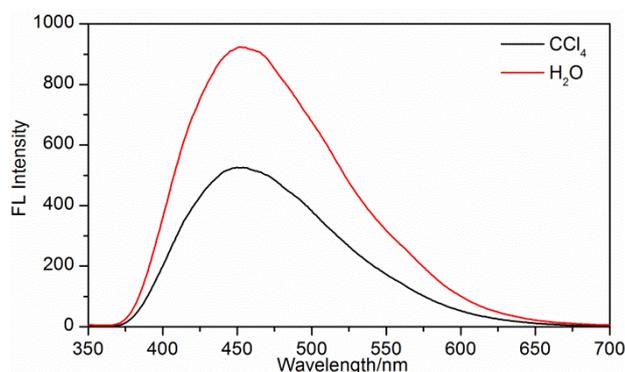


Fig. S3 FL spectra obtained from the MIL-53(Fe) suspension prepared with the dispersant of CCl_4 or H_2O .

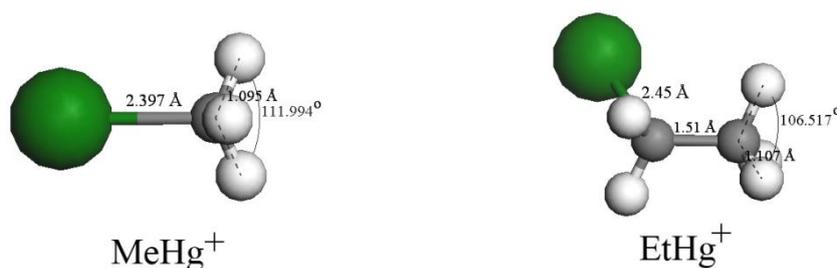


Fig. S4 The lengths/angles of C-H bonds and the lengths of C-Hg bonds in MeHg^+ and EtHg^+ . The figures were made using the Material Studio software (version 6.0, Accelrys).

Table S1 Pore size of different MIL MOF

MIL MOF	MIL-53(Al) ¹	MIL-53(Fe) ²	MIL-68(In) ³	MIL-88B(Fe) ⁴
Pore size (Å)	6.57	8	6	9.5

References

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