

## **Facile stabilization of cyclodextrin metal-organic framework under humid environment by hydrogen sulfide treatment**

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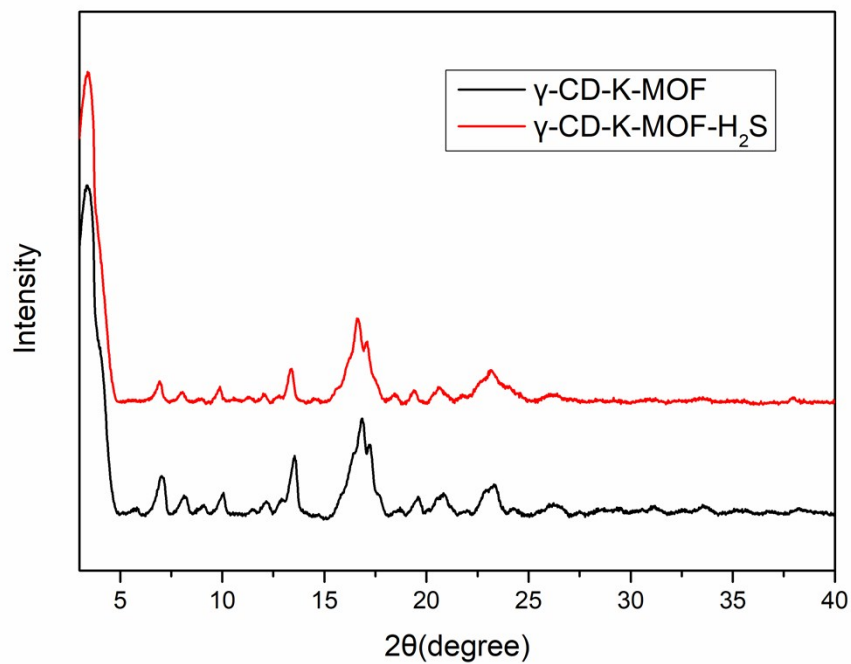


Fig.S1 The XRD pattern of  $\gamma$ -CD-K-MOF and  $\gamma$ -CD-K-MOF- $H_2S$

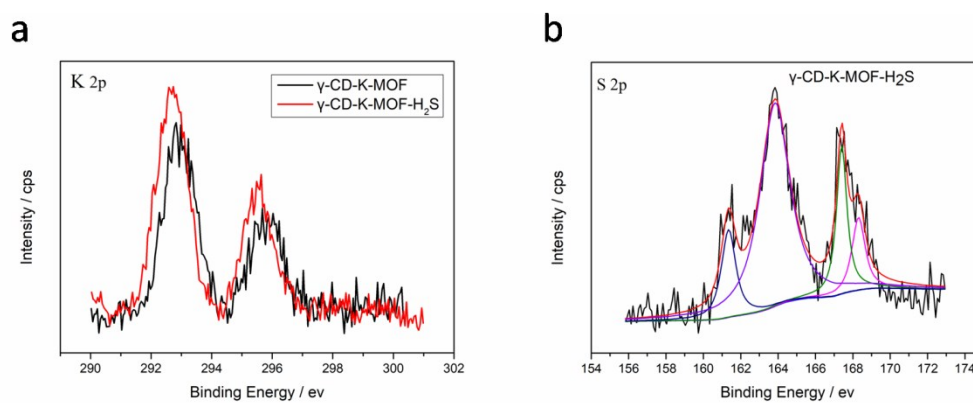


Fig. S2 XPS spectra for (a) K 2p of  $\gamma$ -CD-K-MOF and  $\gamma$ -CD-MOF- $H_2S$ ; (b) S 2p of  $\gamma$ -CD-K-MOF- $H_2S$

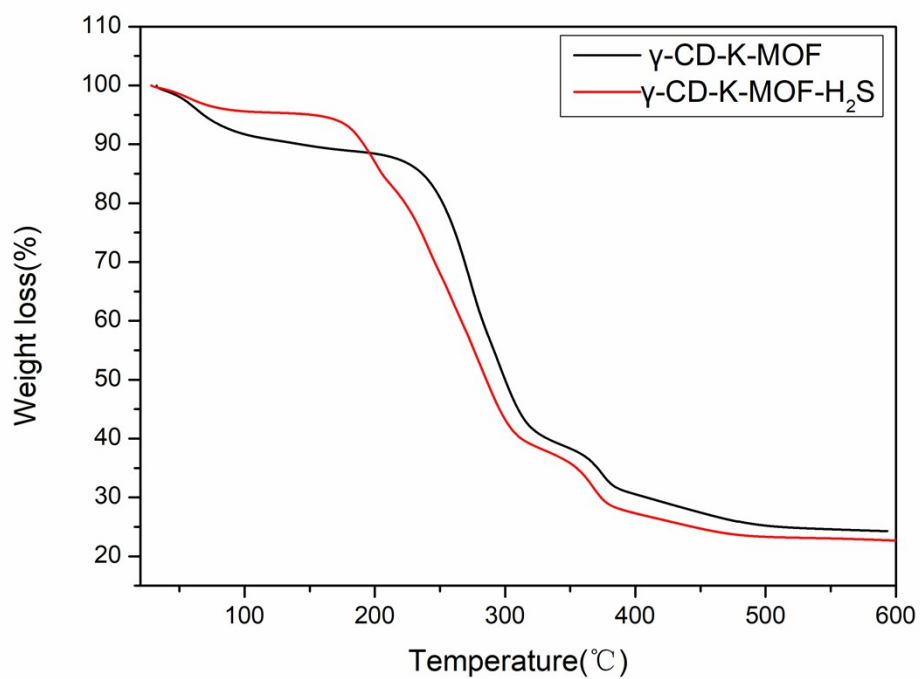


Fig. S3 TGA curves for  $\gamma$ -CD-K-MOF and  $\gamma$ -CD-K-MOF- $H_2S$

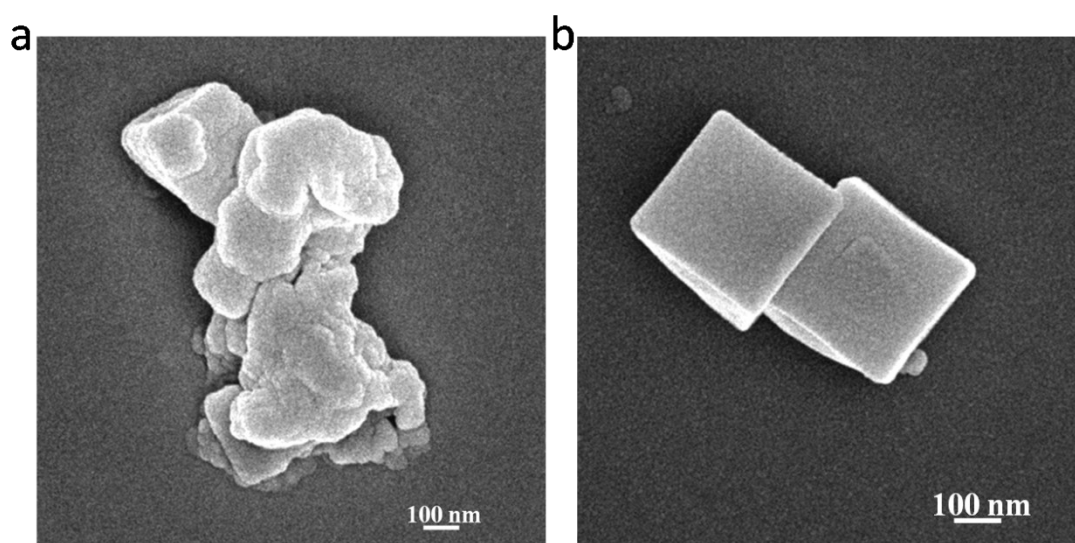


Fig. S4 SEM image of  $\gamma$ -CD-K-MOF (a) and  $\gamma$ -CD-K-MOF- $H_2S$  (b) after exposure to humidity (RH 92%) for 5 days

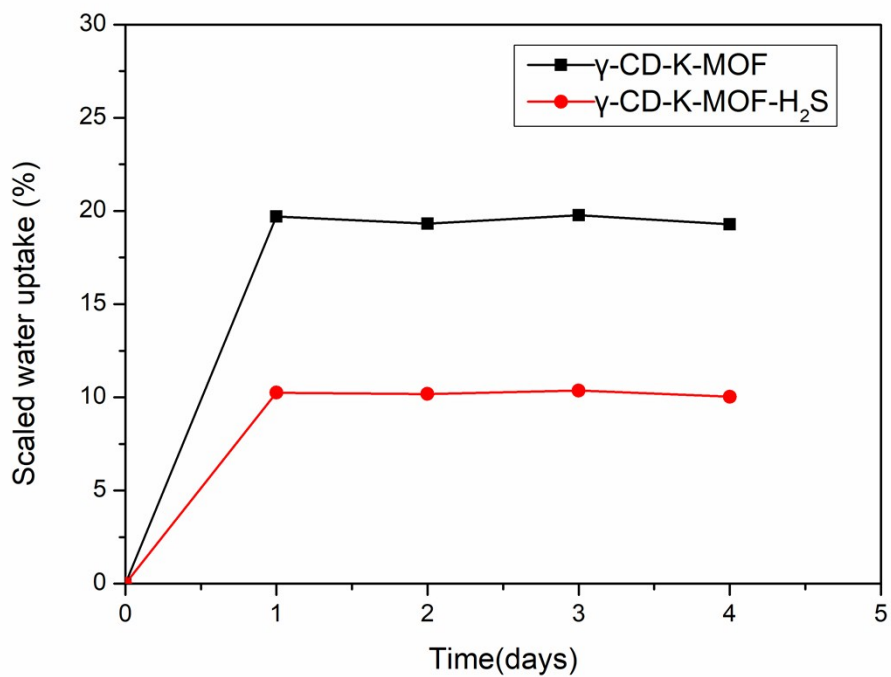


Fig. S5 Water adsorption curves of the dry  $\gamma$ -CD-K-MOF and  $\gamma$ -CD-K-MOF-H<sub>2</sub>S on exposure to an atmosphere of 92% humidity at 293 K and 1 atm

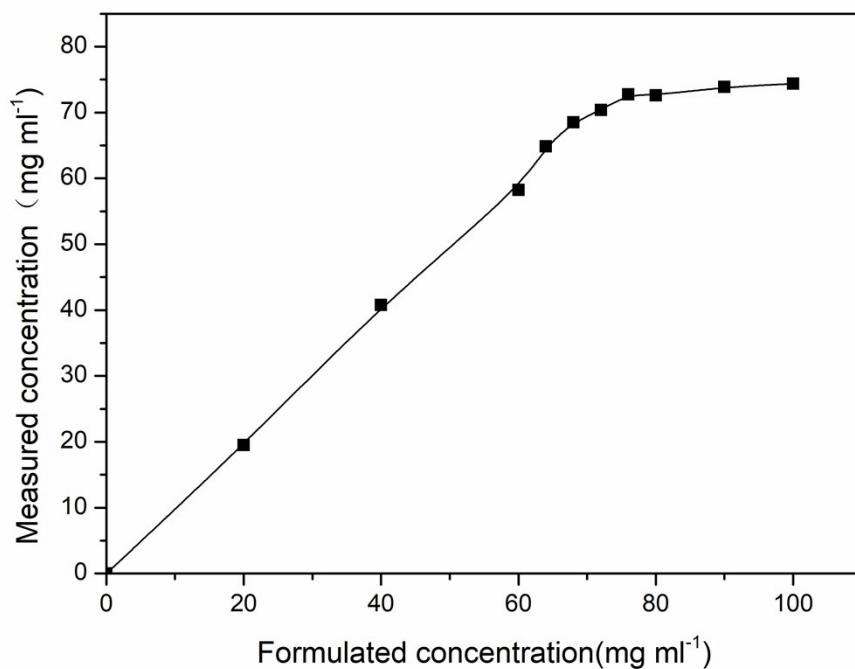


Fig. S6 Equilibrium solubility curve of  $\gamma$ -CD-K-MOF at 293K

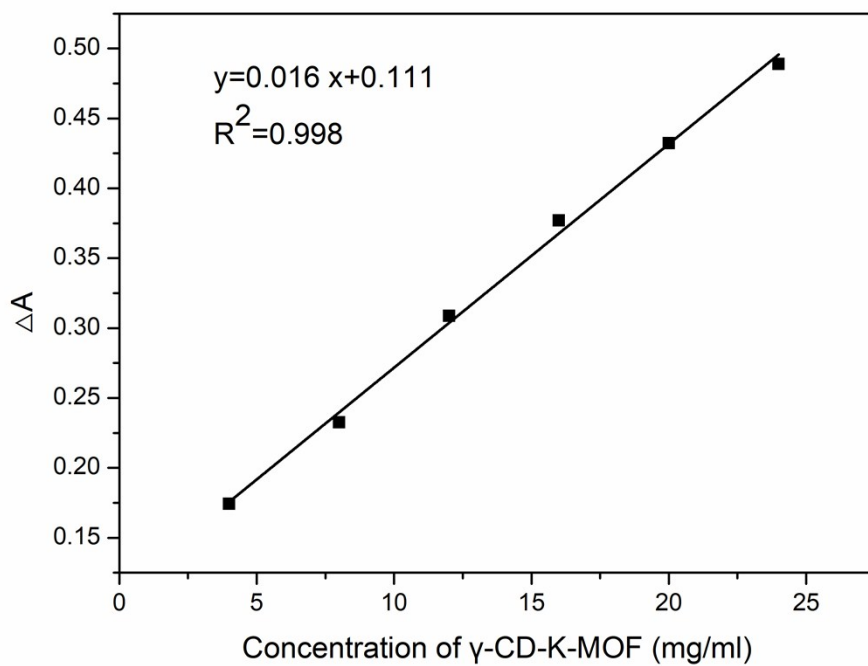


Fig. S7 Calibration curve for  $\gamma$ -CD-K-MOF in aqueous solution

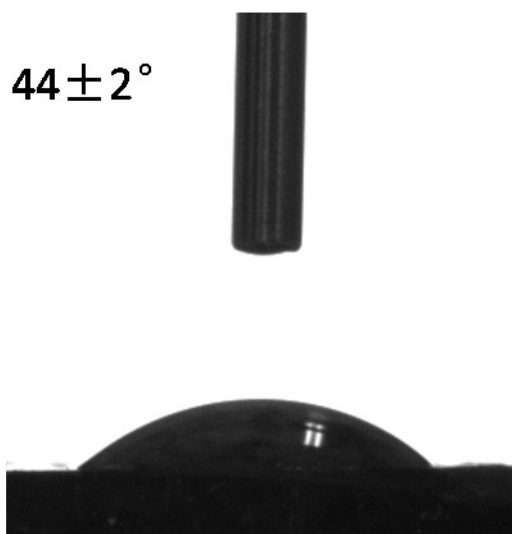


Fig. S8 The water contact angel of  $\gamma$ -CD-K-MOF/ $H_2S$

Table S1 The saturated adsorption capacity of  $\gamma$ -CD-K-MOF and  $\gamma$ -CD-K-MOF- $H_2S$ .

Materials	Saturated adsorption capacity (mg/g)
$\gamma$ -CD-K-MOF	36.71
$\gamma$ -CD-K-MOF- $H_2S$	14.48

