Supporting Information

Phosphomolybdic acid encapsulated in ZIF-8-based porous ionic liquids for reactive extraction desulfurization of fuels

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Contents:

Supporting Figure

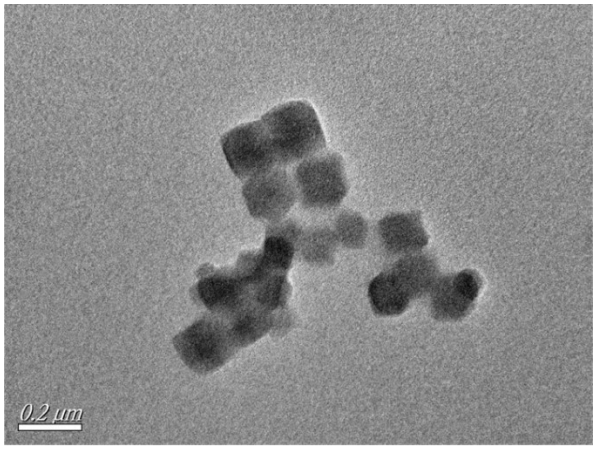

Fig. S1. TEM image of HPMo@ZIF-8-PIL.

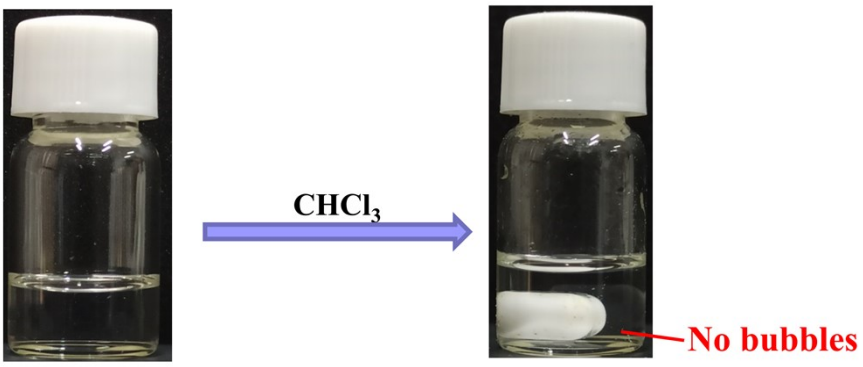

Fig. S2. Photograph of the addition of $CHCl_3$ to [Emim][NTf_2].

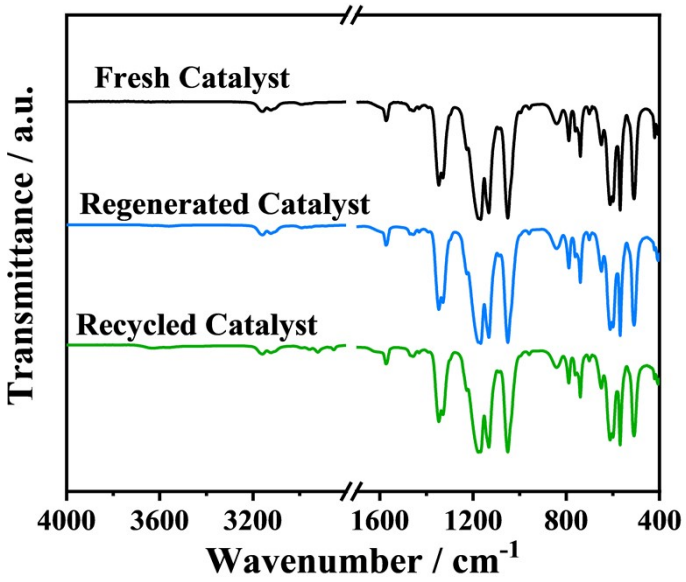

Fig. S3. FT-IR spectra of fresh, recycled, and regenerated HPMo@ZIF-8-PIL.

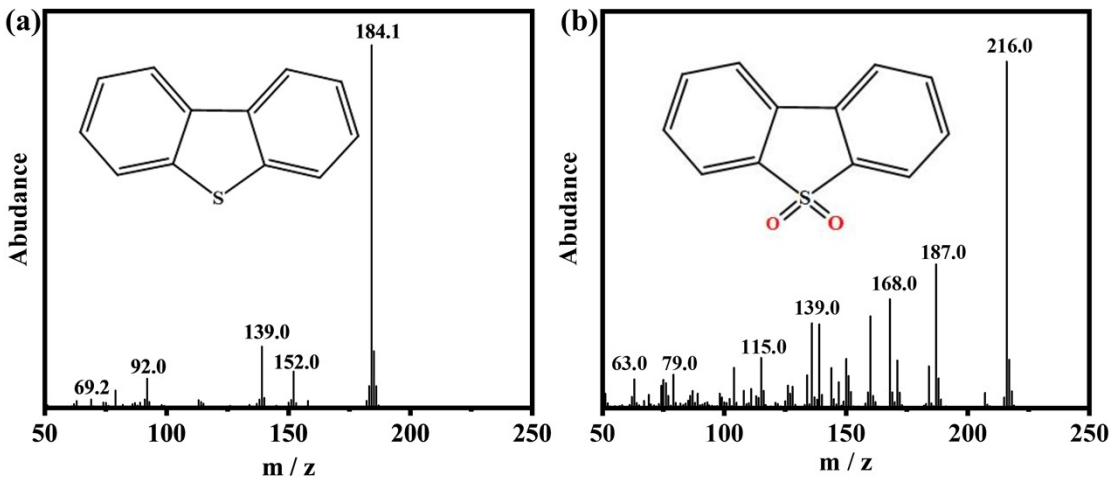

Fig. S4. MS analysis of the characteristic peak at 7.0 min (a) and 11.3 min (b).

Supporting Table

Table S1. The surface area and pore volume of samples

Samples	Surface area (m^2/g)	Pore volume (cm^3/g)
ZIF-8	1906	0.94
HPMo@ZIF-8	1572	0.64

Table S2. The extraction performance of different catalysts

Catalysts	Sulfur removal / %
[Emim][NTf_2]	21.0
HPMo/[Emim][NTf_2]	21.2
ZIF-8/[Emim][NTf_2]	20.0
HPMo@ZIF-8-PIL	21.1

Experimental conditions: *V* (model oil) = 3 mL, *V* (cat.) = 1 mL, *T* = 30°C, *t* = 120 min.

Table S3. Rate constant k, half-lives $t_{1/2}$, and correlation coefficient R^2 of different sulfur compounds.

Sulfur compound	Rate constant k (min^{-1})	Correlation coefficient R^2	Half-live $t_{1/2}$ (min)
DBT	0.0349	0.9953	19.86
4-MDBT	0.0192	0.9944	36.09
4,6-DMDBT	0.0101	0.9962	68.61