Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

TiO_2 Microspheres Supported Polyoxometalate-based Ionic Liquids Induced Catalytic Oxidative Deep-desulfurization

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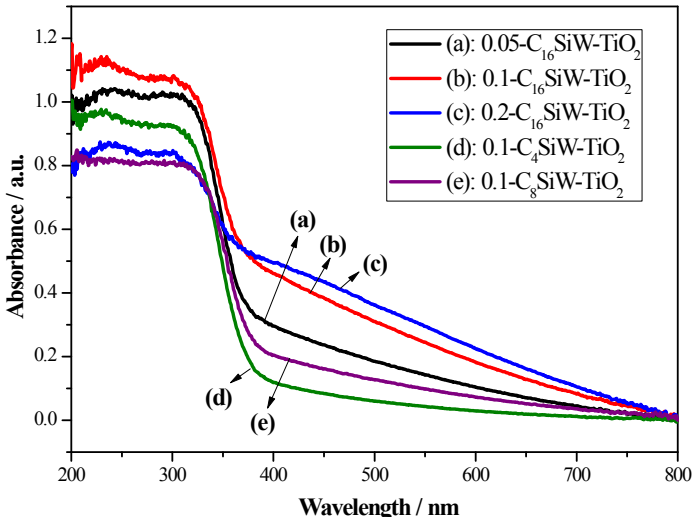


Fig. S1 DRS spectra of (a): 0.05-C_{16}SiW-TiO_2, (b): 0.1-C_{16}SiW-TiO_2, (c): 0.2-C_{16}SiW-TiO_2, (d): 0.1-C_4SiW-TiO_2, (e): 0.1-C_8SiW-TiO_2.

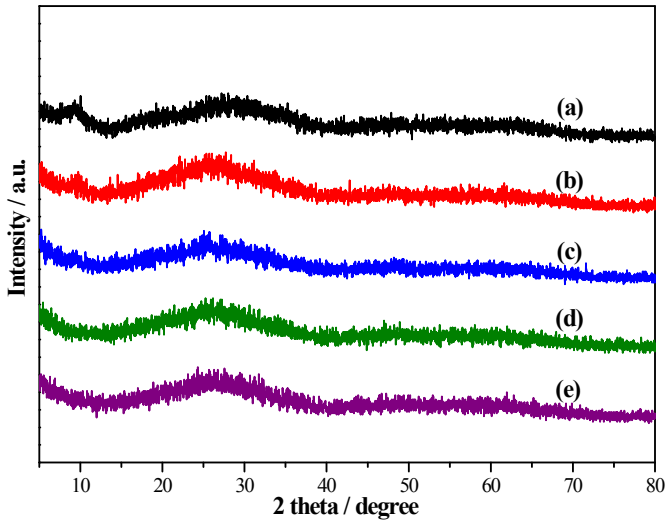


Fig. S2 Wide-angle XRD patterns of (a): 0.05-C_{16}SiW-TiO_2, (b): 0.1-C_{16}SiW-TiO_2, (c): 0.2-C_{16}SiW-TiO_2, (d): 0.1-C_4SiW-TiO_2, (e): 0.1-C_8SiW-TiO_2.

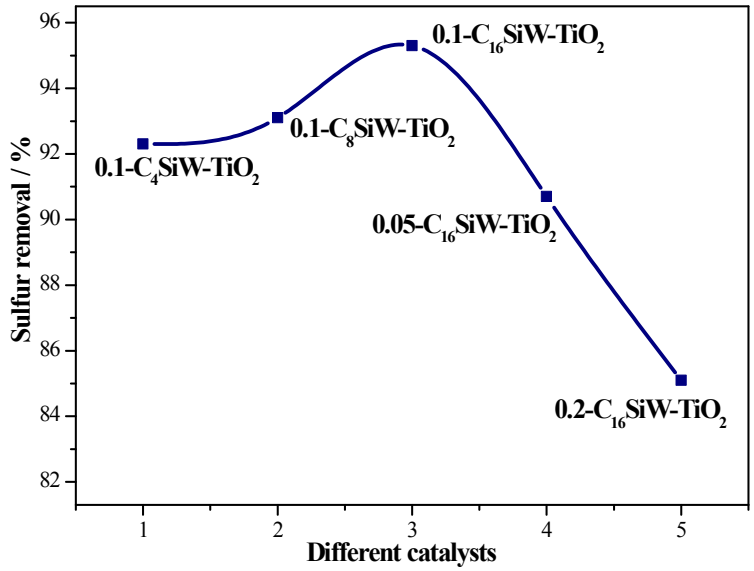


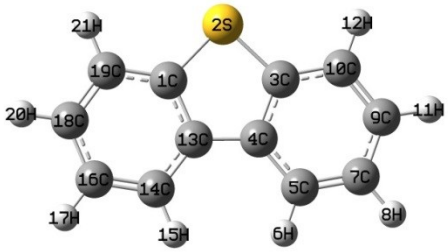
Fig. S3. Effect of different catalysts on the removal of DBT.

Experimental conditions: *m*(catalyst) = 0.01 g, *V*([Bmim]BF_4) = 1mL, *T* = 50ºC, *t* = 1 h, *n*(O/S) = 2, *V*(model oil) = 5 mL.

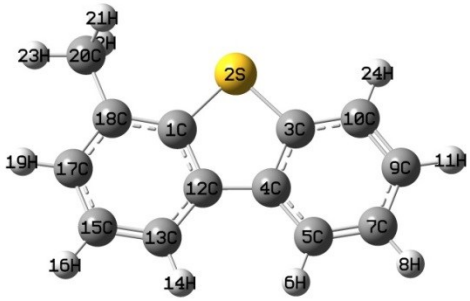
Table S1. The effect of different extractants on the removal of DBT

Entry	Different ILs	Sulfur removal / %	
		EDS[a]	ECODS[b]
1	[Bmim]PF_6	16.8	18.7
2	[Omim]PF_6	31.3	50.5
3	[Bmim]BF_4	18.9	95.3
4	[Omim]BF_4	32.5	93.2

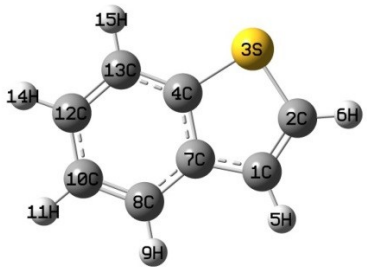
Experiment conditions: m(catalyst) = 0.01 g, V_{IL} = 1 mL, n(O/S) = 2, T = 50°C, V(model oil) = 5 mL. a: t = 15 min; b: t = 1 h.



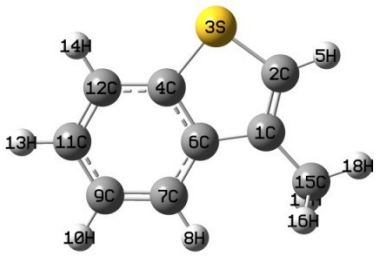
(a). DBT



(b). 4-MDBT



(c). BT



(d). 3-MBT

Fig. S4. Spatial structure of the different substrate. (a). DBT, (b). 4-MDBT, (c). BT and (d). 3-MBT.