Supporting Information

Supported ionic liquid [Bmim]$FeCl_4$/Am TiO_2 as an efficient catalyst for catalytic oxidative desulfurization of fuels

Suhang Xun[a], Wenshuai Zhu[a,*], Dan Zheng[a], Hongping Li[a], Wei Jiang[b], Ming Zhang[b], Yuejiao Qin[a], Zhen Zhao[c], Huaming Li[b,*]

[a] *School of Chemistry and Chemical Engineering, Jiangsu University, Zhenjiang, 212013, P. R. China*

[b] *Insititute for Energy Research, Jiangsu University, Zhenjiang, 212013, P. R. China*

[c] *State Key Laboratory of Heavy Oil Processing, Faculty of Science, China University of Petroleum, Beijing, 102249, P. R. China*

***Corresponding author**: Tel.:+86-511-88791800; Fax: +86-511-88791708;
E-mail address: zhuws@ujs.edu.cn (W. S. Zhu)，lhm@ujs.edu.cn (H. M. Li)

Table S1 Different heterogeneous catalytic system parameters on the removal of DBT

Entry	Catalyst	Reaction conditions			Sulfur removal / %	Recycle Times	Ref.
		t / min	T / °C	n(H_2O_2/ DBT)			
1	HPW/SiO_2-EISA	120	60	12	99.6	7	1
2	SiO_2-TiO_2 xerogel	180	80	15	96	3	2
3	[pmim]$FeCl_4$-MCM-41	60	30	5	91.6	4	3
4	Mesoporous HPMo/SiO_2	60	70	0.05 mL	100	4	4
5	[Bmim]PW/HMS	60	60	3	98	3	5
6	$[(C_6H_{13})_3PC_{14}H_{29}]_2W_6O_{19}$/ G-*h*-BN	80	30	4	99.3	5	6
7	HPW-PDMAEMA-SiO_2	150	70	12	100	6	7
8	HPW-CeO_2	30	30	6	99.4	10	8
9	PSMIMHSO_4/UIO-66	30	20	7	94.6[a]	6	9
10	WO_x/ZrO_2-700	60	70	15	86[a]	4	10
11	[pmim]$FeCl_4$-SBA-15	90	30	5	94.3	-	11
12	$[(C_4H_9)_4N]_6Mo_7O_{24}$	90	50	5	99	6	12
13	$[C_{16}mim]_2Mo_2O_{11}$	60	50	6	98.4	6	13
14	HPW-TUD-1	120	60	8	98.1	3	14
15	[Bmim]$FeCl_4$/Am TiO_2	60	60	4	99.6	25	This work

a: the removal of BT

1 J. H. Lei, L. N. Chen, P. Yang, X. D. Du and X. M. Yan, *J. Porous Mater.*, 2013, **20**, 1379-1385.

2 S. T. Yang, K. E. Jeong, S. Y. Jeong and W. S. Ahn, *Mater. Res. Bull.*, 2012, **47**, 4398-4402.

3 J. Xiong, W. S. Zhu, H. M. Li, Y. H. Xu, W. Jiang, S. H. Xun, H. Liu and Z. Zhao, *AIChE J.*, 2013, **59**, 4696-4704.

4 J. H. Qiu, G. H. Wang, Y. Q. Zhang, D. L. Zeng and Y. Chen, *Fuel*, 2015, **147**, 195-202.

5 L. Tang, G. Q. Luo, L. H. Kang, M. Y. Zhu and B. Dai, *Korean J. Chem. Eng.*, 2013, **30**, 314-320.

6 W. S. Zhu, B. L. Dai, P. W. Wu, Y. H. Chao, J. Xiong, S. H. Xun, H. P. Li and H. M. Li, *ACS Sustainable Chem. Eng.*, 2015, **3**, 186-194.

7 M. Y. Zhu, G. Q. Luo, L. H. Kang and B. Dai, *RSC Adv.*, 2014, **4**, 16769-16776.

8 M. Zhang, W. S. Zhu, S. H. Xun, H. M. Li, Q. Q. Gu, Z. Zhao and Q. Wang, *Chem. Eng. J.*, 2013, **220**, 328-336.

9 J. X. Wu, Y. L. Gao, W. Zhang, Y. Y. Tan, A. M. Tang, Y. Men and B. H. J. Tang, *Appl. Organomet. Chem.*, 2015, **29**, 96-100.

10 Z. Hasan, J. Jeon and S. H. Jhung, *J. Hazard. Mater.*, 2012, **205**, 216-221.

11 W. J. Ding, W. S. Zhu, J. Xiong, L. Yang, A. M. Wei, M. Zhang and H. M. Li, *Chem. Eng. J.*, 2015, **266**, 213-221.

12 H. Y. Lü, C. L. Deng, W. Z. Ren and X. Yang, *Fuel Process. Technol.*, 2014, **119**, 87-91.

13 W. S. Zhu, P. W. Wu, Y. H. Chao, H. M. Li, F. Zou, S. H. Xun, F. X. Zhu and Z. Zhao, *Ind. Eng. Chem. Res.*, 2013, **52**, 17399-17406.

14 L. Tang, G. Q. Luo, M. Y. Zhu, L. H. Kang and B. Dai, *J. Ind. Eng. Chem.*, 2013, **19**, 620-626.