

## **Electronic Supplementary Material**

Catalytic oxidative desulfurization of gasoline using phosphotungstic acid supported on MWW zeolite

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**Table S1** Contents (mg/L) of sulfur compounds of SRG before and after desulfurization.

Before reaction		After reaction	
S-compound	Content	S-compound	Content
Methyl mercaptan	3.8	Thiophene	13.3
Ethane thiol	270.4	2-methylthiophene	1
Dimethyl sulfide	2.7	Ethylthiophene	0.3
Carbon disulfide	0.7	Unknown sulfide	0.4
Isopropyl mercaptan	187.7	C6 mercaptan	0.4
2,5-Dimethylthiophene	0.3	2,3-Dimethylthiophene	0.3
Allyl mercaptan	5.8	C3 Thiophene	0.2
N-propyl mercaptan	56.1		
Bethel sulfide	20.9		
Thiophene	95.4		
Isobutanethiol	2.7		
3-methyl-2-butanethiol	7.9		
Isopentyl mercaptan	21.3		
2-methylthiophene	10.1		
3-methylthiophene	0.3		
3-methyl-1-butanethiol	0.97		
2-methyl-1-butanethiol	4.2		
Tetrahydrothiophene	3.2		
Ethane dithiol	0.3		
N-pentanethiol	1.1		
Methyl-ethyl-disulfide	0.6		
2-Methyltetrahydrothiophene	6.5		
Ethylthiophene	14.2		
2,5-dimethylthiophene	0.8		
2,4-dimethylthiophene	0.7		
2,3-dimethylthiophene	0.5		
N-propyl sulfide	0.8		
Methyl isopropyl disulfide	1.2		
C6 thioether	7.3		
C6 mercaptan	10.5		
Diethyl disulfide	0.2		
Methyl propyl disulfide	0.3		
C3 Thiophene	7		
Diisopropyl disulfide	0.2		
C4 thiophene	0.7		
Isopropyl propyl disulfide	0.2		
C8 mercaptan	0.2		
Unknown sulfides	79.1		
<b>Total sulfur content</b>	<b>826.9</b>	<b>Total sulfur content</b>	<b>15.9</b>

**Table S2** Contents (mg/L) of sulfur compounds of FCC before and after desulfurization.

Before reaction		After reaction	
S-compound	Content	S-compound	Content
Ethane thiol	4.3	Thiophene	13.9
Isopropyl mercaptan	2.7	2-methylthiophene	4.1
Tert-butyl mercaptan	0.5	3-methylthiophene	5.1
N-propyl mercaptan	1.8	Ethylthiophene	0.9
Thiophene	14.4	2,5-dimethylthiophene	0.2
Isobutanethiol	0.2	C6 mercaptan	0.4
2-methylthiophene	6.4	2,4-dimethylthiophene	0.3
3-methylthiophene	7.9	2,3-dimethylthiophene	2.4
Tetrahydrothiophene	1.4	3,4-dimethylthiophene	0.6
2-methyltetrahydrothiophene	0.3	C3 thiophene	3.1
Ethylthiophene	2.6	Benzothiophene	5.3
2,5-dimethylthiophene	0.2	Methylbenzothiophene	0.5
C6 mercaptan	2.8	Unknown sulfide	4.9
2,4-dimethylthiophene	3.4		
2,3-dimethylthiophene	1.7		
3,4-dimethylthiophene	0.6		
2,4-dimethyltetrahydrothiophene	0.3		
Diethyl disulfide	0.3		
C3 Thiophene	3.1		
Dimethyl trisulfide	0.2		
C7 mercaptan	1.4		
C4 thiophene	0.2		
Benzothiophene	0.2		
Unknown sulfides	6.7		
Methylbenzothiophene	14.9		
<b>Total sulfur content</b>	<b>78.5</b>	<b>Total sulfur content</b>	<b>41.7</b>