

Supporting Information

for

Methanol aromatization over Ga-doped desilicated HZSM-5

Po-Chen Lai^a, Chao-Huang Chen^b, His-Yen Hsu^b, Chiou-Hwang Lee^b, Yu-Chuan Lin^{a,*}

^aDepartment of Chemical Engineering, National Cheng Kung University, Tainan
70101, Taiwan

^bDivision of Chemical Engineering, Material and Chemical Research Laboratories,
Industrial Technology Research Institute, Hsinchu 30011, Taiwan

*Corresponding author: yclin768@mail.ncku.edu.tw

Contents

Table S1. Initial activity and product distribution of isobutane conversion over HZSM-5 and HDZSM-5.

Table S2. Initial activity and product distribution of isobutane conversion over Ga/HZSM-5 and Ga/HDZSM-5.

Table S1. Initial activity and product distribution of isobutane conversion over HZSM-5 and HDZSM-5.

Temp. (°C)	HZSM-5					HDZSM-5				
	400	425	450	475	500	400	425	450	475	500
Conversion (%)	1.8	3.8	9.0	18.4	34.4	0.8	1.9	4.4	10.3	24.0
C ₁	3.4	4.3	5.3	5.6	6.4	3.5	4.5	6.1	6.1	6.5
C ₂ ⁼	24.7	24.3	31.0	33.2	33.0	27.5	19.8	24.6	25.2	26.9
C ₃ ⁼	65.1	66.2	57.9	52.8	47.2	59.4	69.0	63.5	60.5	56.0
C ₄ ⁼	5.0	4.0	3.2	3.1	3.4	7.1	5.3	4.4	5.1	4.5
C ₅ ⁼	1.4	1.0	0.7	0.6	0.3	2.5	1.2	0.9	0.8	0.5
C ₆ ⁼	0.0	0.0	0.2	0.1	0.0	0	0	0	0.1	0.1
C ₅₋₇	0.4	0.2	0	0.1	0.1	0	0.2	0.1	0.1	0.0
B	0	0	0.2	0.8	2.2	0	0	0	0.4	1.2
T	0	0	0.9	2.4	5.0	0	0	0.4	1.2	3.0
o-X + m-X	0	0	0.6	1.0	1.9	0	0	0	0.5	1.0
p-X	0	0	0	0.3	0.5	0	0	0	0	0.3
C ₉ ⁺ aromatics	0	0	0	0	0	0	0	0	0	0
∑ Aromatics	0	0	1.7	4.5	9.7	0	0	0.4	2.0	5.6

Table S2. Initial activity and product distribution of isobutane conversion over Ga/HZSM-5 and Ga/HDZSM-5.

Temp. (°C)	Ga/HZSM-5					Ga/HDZSM-5				
	400	425	450	475	500	400	425	450	475	500
Conversion (%)	17.7	30.6	44.6	58.3	75.6	15.0	32.6	53.1	69.0	80.0
C ₁	1.9	2.1	2.7	3.1	3.9	4.4	3.0	3.3	3.5	3.5
C ₂ ⁼	16.3	15.0	15.0	15.9	18.2	19.9	15.6	15.0	15.6	17.4
C ₃ ⁼	29.9	24.9	23.2	22.6	21.9	45.7	30.9	26.5	23.2	21.1
C ₄ ⁼	4.7	5.1	4.9	5.3	3.9	4.9	5.3	4.8	4.1	3.7
C ₅ ⁼	0.4	0.2	0.1	0	0	1.7	0.4	0.1	0.0	0.0
C ₆ ⁼	0.1	0	0	0	0	0.2	0.2	0.0	0.0	0.0
C ₅₋₇	0.1	0	0	0	0	0.3	0.1	0.0	0.0	0.0
B	5.2	7.8	10.9	13.2	17.2	3.3	7.3	11.0	13.7	14.0
T	21.7	25.6	27.3	27.1	26.2	11.6	22.5	24.8	24.3	23.3
o-X + m-X	14.2	13.3	11.2	9.2	6.6	5.5	10.7	9.2	7.7	6.8
p-X	3.4	3.5	3.0	2.4	1.4	1.4	2.5	2.2	1.8	1.3
C ₉ ⁺ atomatics	2.1	2.5	1.7	1.2	0.7	1.1	1.5	3.1	6.1	8.9
∑ Aromatics	46.7	52.7	54.1	53.1	52.1	22.9	44.5	50.2	53.6	54.3