

## ***Supporting Information***

### **Enhanced performance of adsorptive removal of thiophene from model fuel over micro-mesoporous binderless ZSM-5 prepared by in-situ crystallization**

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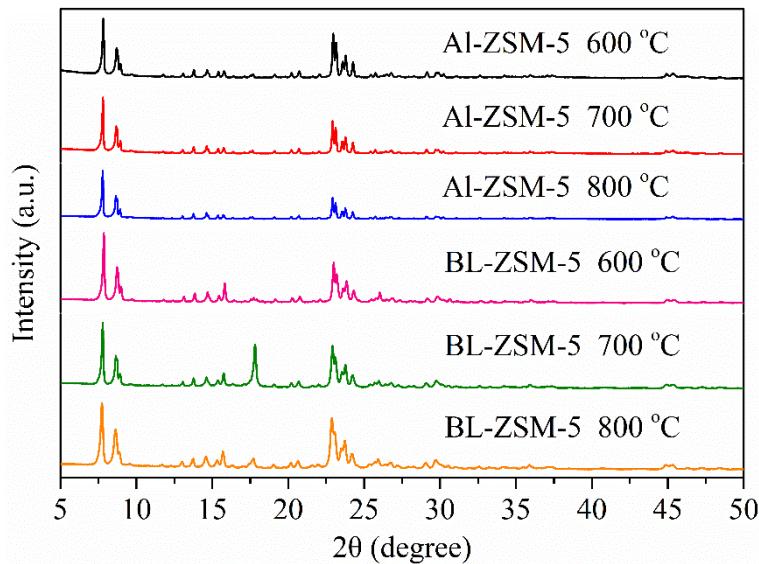
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**Table S1. The crushing strength of Al-ZSM-5 and BL-ZSM-5**

Serial number	Al-ZSM-5 (N/cm)	BL-ZSM-5 (N/cm)
1	77	73
2	74	71
3	71	67
4	76	69
5	72	71
6	70	68
7	72	70
8	72	72
9	69	70
10	72	71
Average	72.5	70.2

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**Figure S1.** XRD patterns of Al-ZSM-5 and BL-ZSM-5 after they were calcined in air under high temperature for 4 h (600, 700 and 800°C).

**Table S2. Fitted parameters of different kinetics models and error analyses**

Parameters	Al-ZSM-5	BL-ZSM-5
Pseudo-first-order		
$q_e/(\text{mg}\cdot\text{g}^{-1})$	0.2870	0.1659
$k_1/(\text{min}^{-1})$	0.0305	0.0242
$R^2$	0.8450	0.8751
Pseudo-second-order		
$q_e/(\text{mg}\cdot\text{g}^{-1})$	0.5614	0.6179
$k_2/(\text{g}\cdot\text{mg}^{-1}\cdot\text{min}^{-1})$	0.1569	0.2583
$R^2$	0.9995	0.9999

**Table S3. Fitted parameters of different isotherm and error analyses**

Parameters	Al-ZSM-5		BL-ZSM-5	
	30°C	40°C	30°C	40°C
Langmuir isotherm				
$V_m/(\text{mg}\cdot\text{g}^{-1})$	0.0794	0.0586	0.0975	0.0615
$K_L/(\text{L}\cdot\text{mg}^{-1})$	0.0137	0.0009	0.0179	0.0076
$R^2$	0.9508	0.6558	0.9781	0.7892
Freundlich isotherm				
$1/n$	0.636	0.781	0.614	0.727
$K_F/(\text{mg}\cdot\text{g}^{-1})$	0.0019	0.0009	0.0027	0.0012
$R^2$	0.9924	0.9870	0.9860	0.9878