

# Supplementary Materials

## Comparative studies on the VOCs sorption performances over hierarchical and conventional ZSM-5 zeolites

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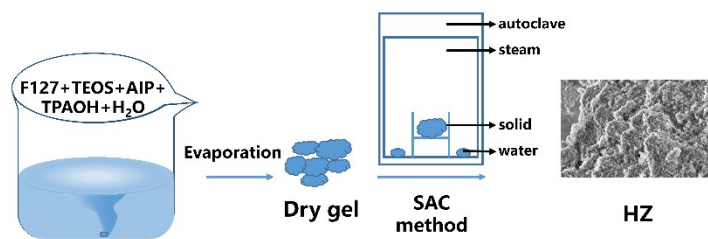
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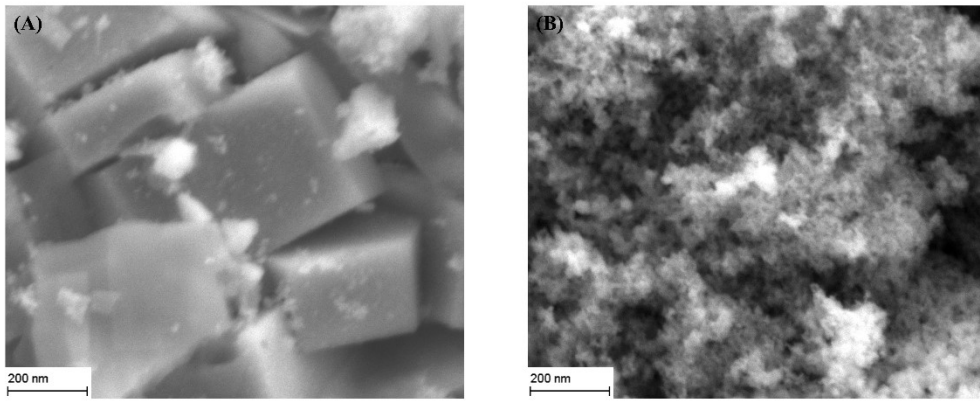
**Table S1** Desorption peak temperature (Tp) and binding energy (E) of hexane and toluene over CZ and HZ.

		CZ	HZ	
Hexane	Peak2	2 K·min <sup>-1</sup>	- <sup>a</sup>	
		3 K·min <sup>-1</sup>	324	
		4 K·min <sup>-1</sup>	333	
		5 K·min <sup>-1</sup>	338	
		E(kJ·mol <sup>-1</sup> )	37.0	27.1
		R <sup>2</sup>	0.9939	0.9710
		<hr/>		
Hexane	Peak3	2 K·min <sup>-1</sup>	- <sup>a</sup>	
		3 K·min <sup>-1</sup>	- <sup>a</sup>	
		4 K·min <sup>-1</sup>	- <sup>a</sup>	
		5 K·min <sup>-1</sup>	- <sup>a</sup>	
		E(kJ·mol <sup>-1</sup> )	42.1	-
		R <sup>2</sup>	0.9899	-
		<hr/>		
Toluene	Peak2	0.5 K·min <sup>-1</sup>	- <sup>a</sup>	
		1 K·min <sup>-1</sup>	- <sup>a</sup>	
		2 K·min <sup>-1</sup>	- <sup>a</sup>	
		3 K·min <sup>-1</sup>	- <sup>a</sup>	
		E(kJ·mol <sup>-1</sup> )	38.1	-
		R <sup>2</sup>	0.9899	-
		<hr/>		

<sup>a</sup>The desorption peak temperature cannot be directly obtained from the TPD profiles due to poor resolution.



**Fig.S1** Schematic image of HZ procedure.



**Fig.S2** SEM images of CZ (A) and HZ (B).

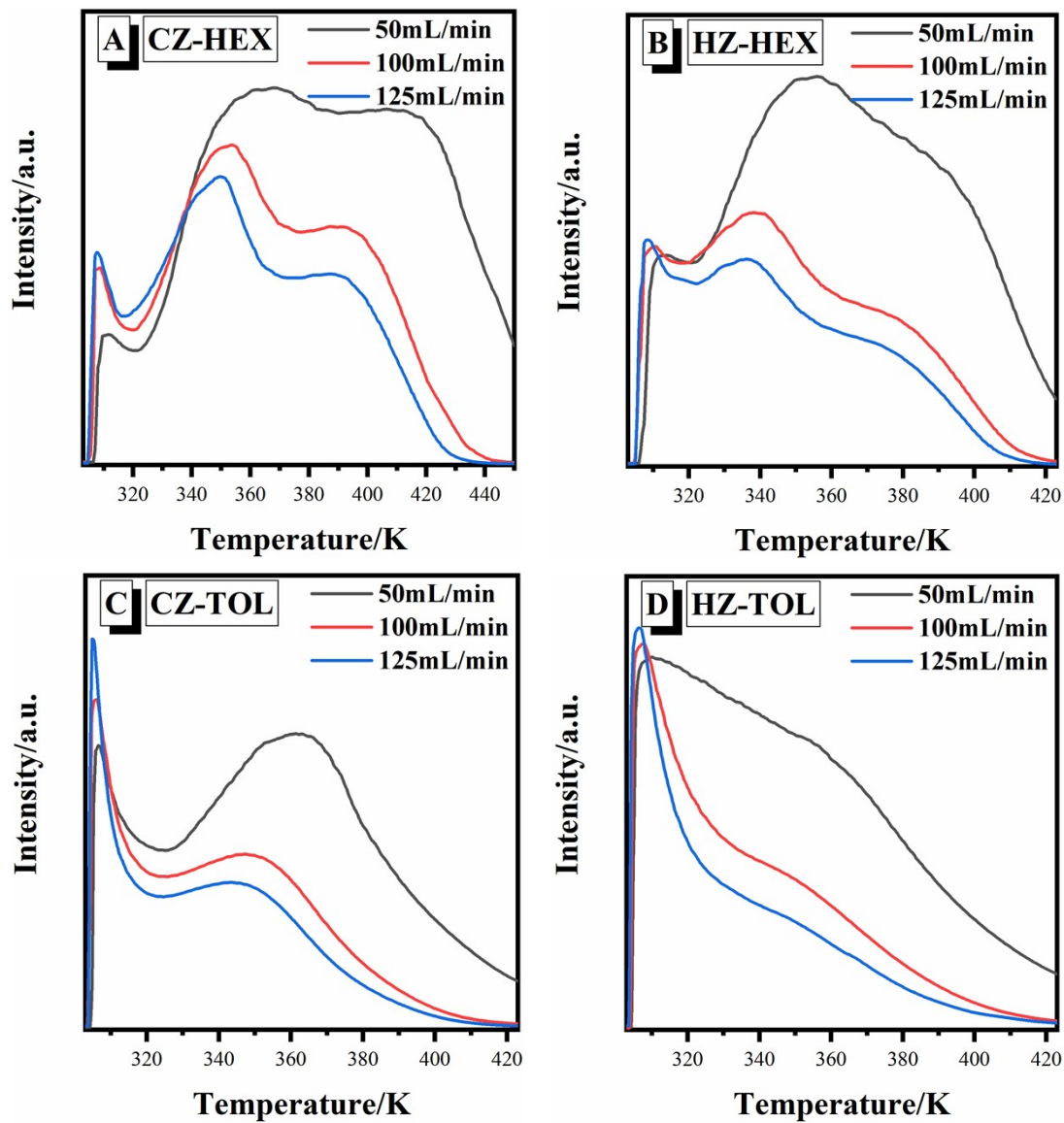
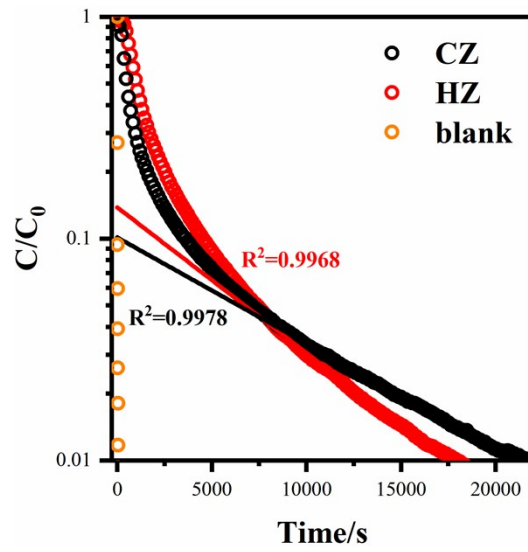


Fig.S3 Temperature-programmed desorption profiles of hexane over CZ (A) and HZ (B) and toluene over CZ (C) and HZ (D) at different gas flow rates (heating rate=5 K·min<sup>-1</sup>).



**Fig. S4** Toluene evolution curves (The samples were first saturated with toluene and at time  $t = 0$ , toluene was cut off. And the solid lines were fitted with an exponential).

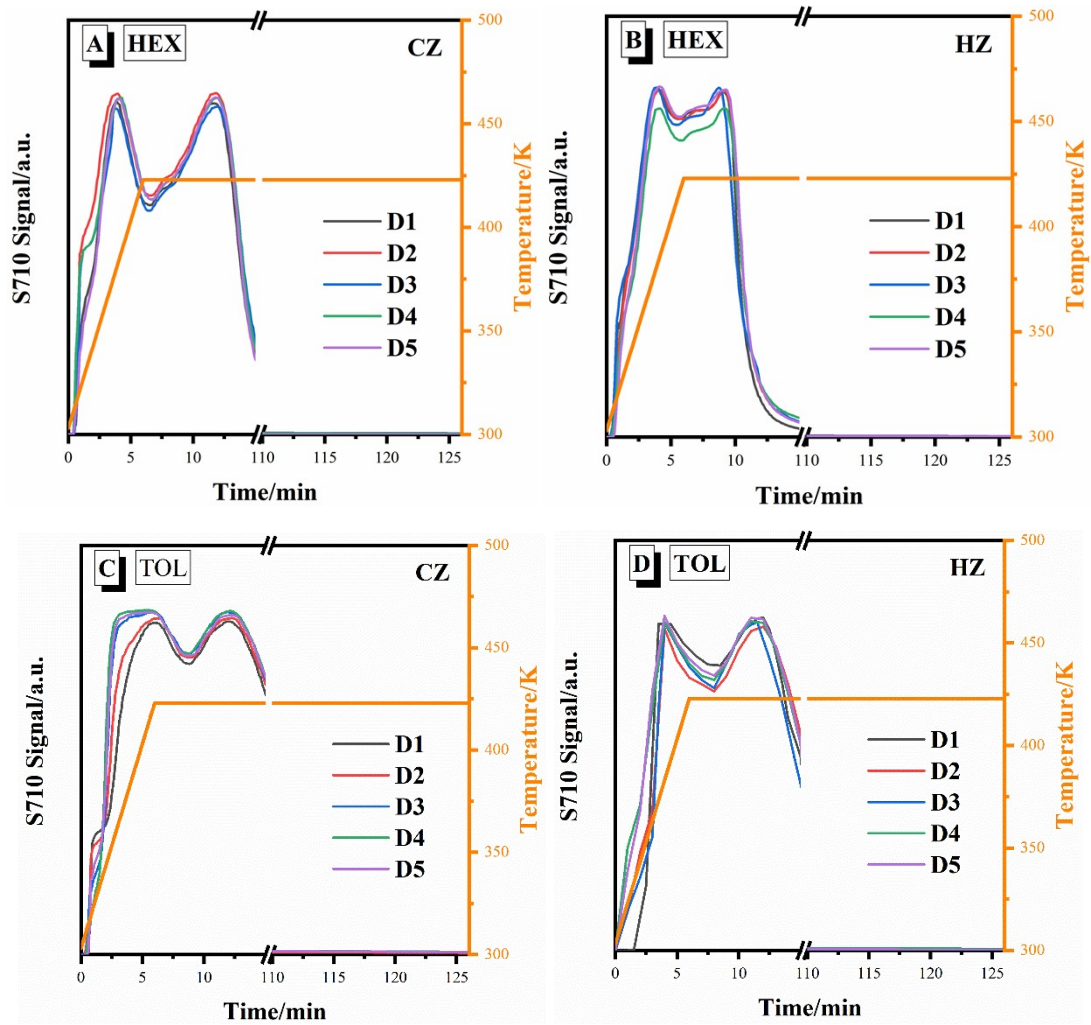


Fig. S5 Desorption curves of hexane over CZ (A) and HZ (B) and toluene over CZ (C) and HZ (D) in cycle adsorption-desorption tests.