

## Supplementary Information

### Novel OSDA-Synthesized EUO Zeolites with High Catalytic Performance in C8 Aromatic Isomerization

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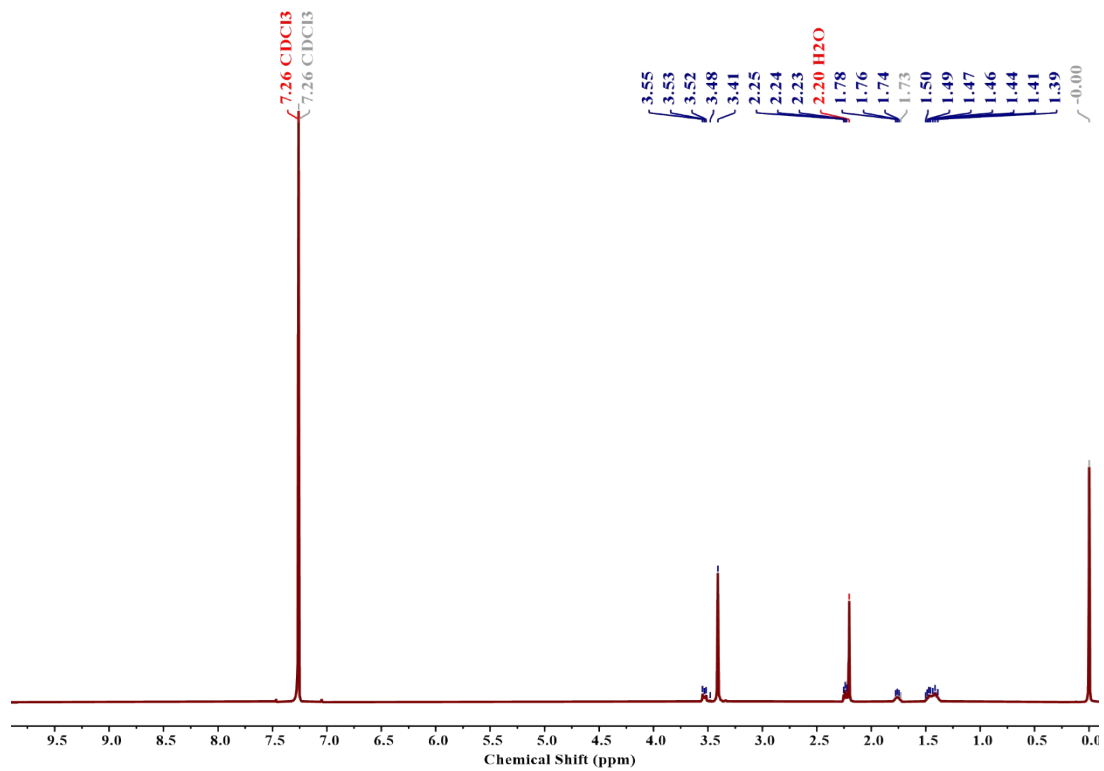
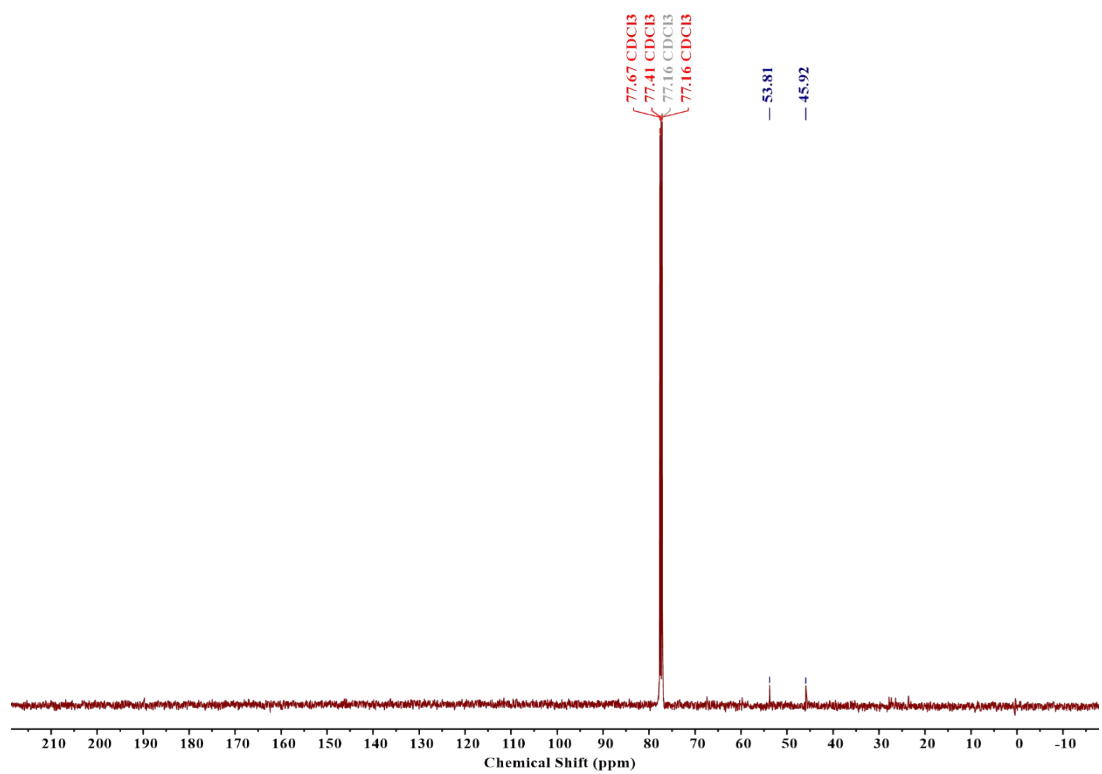
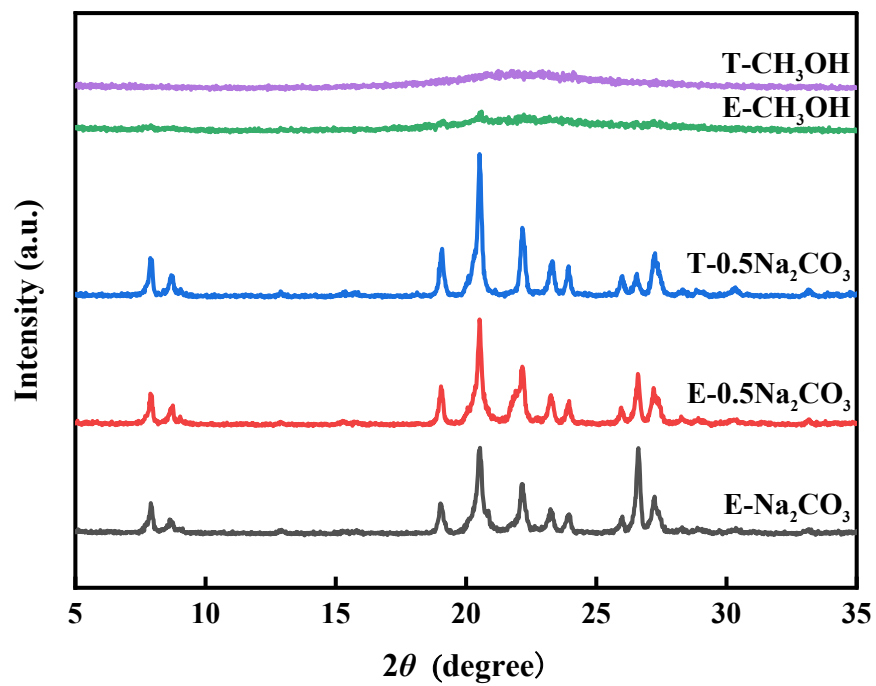


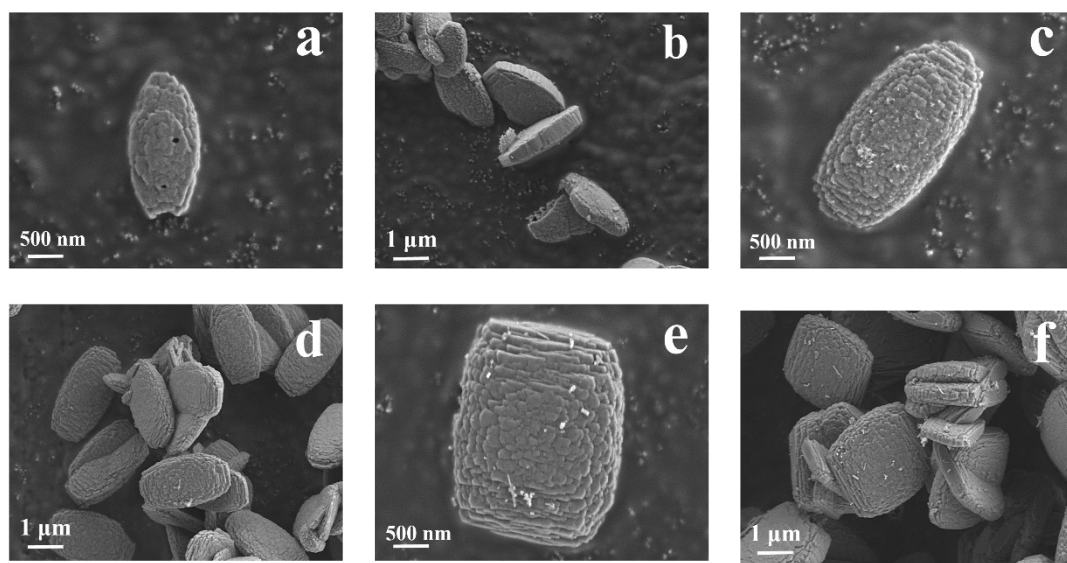
Fig. S1 <sup>1</sup>H NMR spectrum of HMC



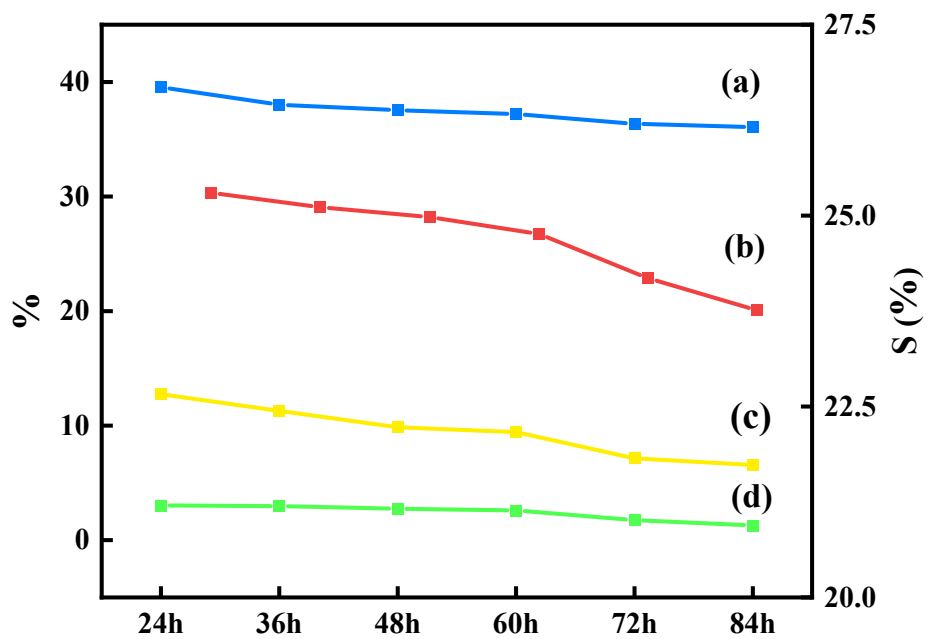
**Fig. S2**  $^{13}\text{C}$ NMR spectrum of HMC.



**Fig. S3** XRD patterns of zeolites synthesized under different experimental conditions.



**Fig. S4** SEM images of zeolites synthesized under different experimental conditions: (a, b) E- $\text{Na}_2\text{CO}_3$ ; (c, d) E-0.5 $\text{Na}_2\text{CO}_3$ ; (e, f) T-0.5 $\text{NaOH}$ .



**Fig. S5** Stability evaluation of the catalytic performance of the catalyst over a reaction time of 24-84 h. Left axis: (a) M-xylene conversion, (c) Ethylbenzene conversion, (d) Xylene loss. Right axis: (b) Isomerization activity (S).

**Table S1** Bulk and surface Si/Al ratios of the zeolites determined by XRF and XPS.

Sample	Surface (Si/Al)	Bulk (Si/Al)	Surface/Bulk
T-45	17.11	60.228	0.28
E-45	21.43	45.126	0.48
T-45-calcined	20.59		

**Table S2** C8 aromatic product distribution over the catalyst at different reaction times (24-84 h).

Product distribution (%)	Catalyst					
	36h	48h	60h	72h	96h	120h
Benzene	0.28	0.23	0.26	0.24	0.21	0.17
Toluene	1.17	0.97	1.04	0.91	0.72	0.56
Ethylbenzene	6.05	6.21	6.31	6.34	6.50	6.54
<i>Para</i> -xylene	22.93	22.81	22.72	22.55	22.19	21.91
<i>Meta</i> -xylene	56.27	57.64	58.09	58.41	59.19	59.36
<i>Ortho</i> -xylene	11.25	10.36	10.13	9.11	10.36	10.83
Trimethylbenzene	0.91	0.73	0.58	0.62	0.48	0.45