Electronic Supplementary Material (ESI) for Dalton Transactions.

Supplementary information (SI)

CTAB-assisted size controlled synthesis of SAPO-34 and its contribution toward MTO performance

Table S1 comparison of different crystal growth inhibitors (CGIs)

Authors	**CGI**	**SDA/ Phase**	**Size inhibition**	**MTO lifetime**	**reference s**
Jin etal.	-	DPA	10-30 µm aggregates with 300-500 nm subunits	-	1
	Hexane 1,2,3-triol	DPA	5-6 µm aggregates with 200-400 nm subunits	-	
Shi etal.	-	TEA	1.2 – 1.5 µm	-	2
	ß-cyclodextrin	TEA	400-500 nm	-	
Wang etal.	-	TEAOH	2 µm	208 min	3
	DPHAB	TEAOH	50-500 nm	292 min	
Wu etal.	-	TEA	-	208 min	4
	PZPMS	TEA	Particle with 1 µm size comprising of 100 -200 nm subunits	376 min	
Venna etal.	-	TEAOH	1.4 µm	-	5
	PEG	TEAOH	700 nm	-	
	Brij-35	TEAOH	600-700 nm	-	
	Methylene blue	TEAOH	500 700 nm	-	
Li etal.	CTAB	TMAdOH / SSZ-13	1.5-2.5 µm	314 min	6
	CTAB	TMAdOH / SSZ-13	50-200 nm	783 min	

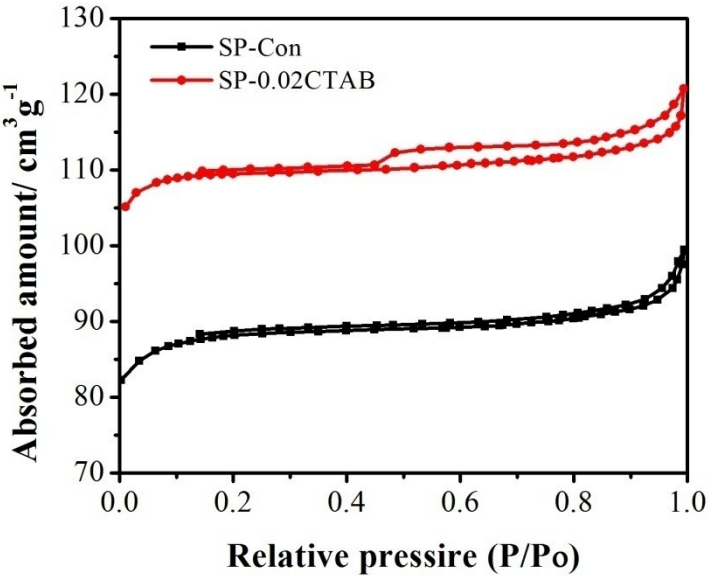

Fig. S1 N_2 adsorption-desorption isotherm of the conventional and SP-0.02CTAB SAPO-34 samples

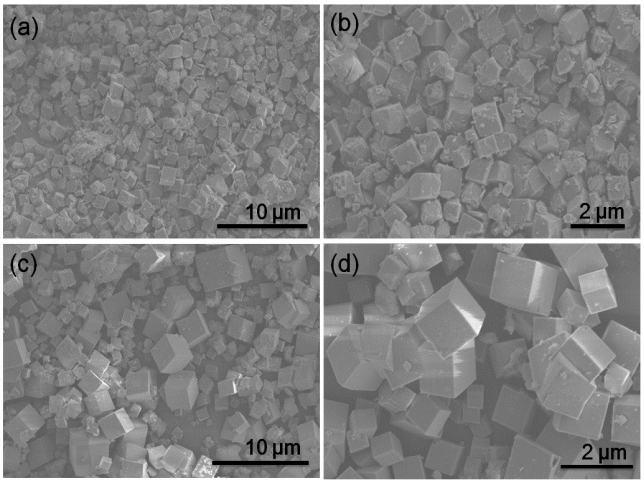

Fig. S2 SEM images of the sample SP-0.03CTAB (a,b) and SP-0.04CTAB (c,d)

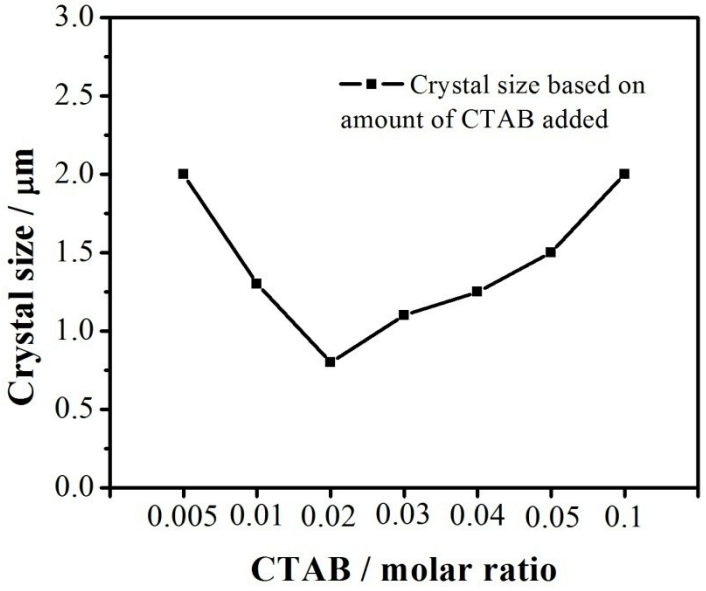

Fig. S3 Relationship between crystal size and CTAB content in the CP-xCTAB SAPO-34 samples

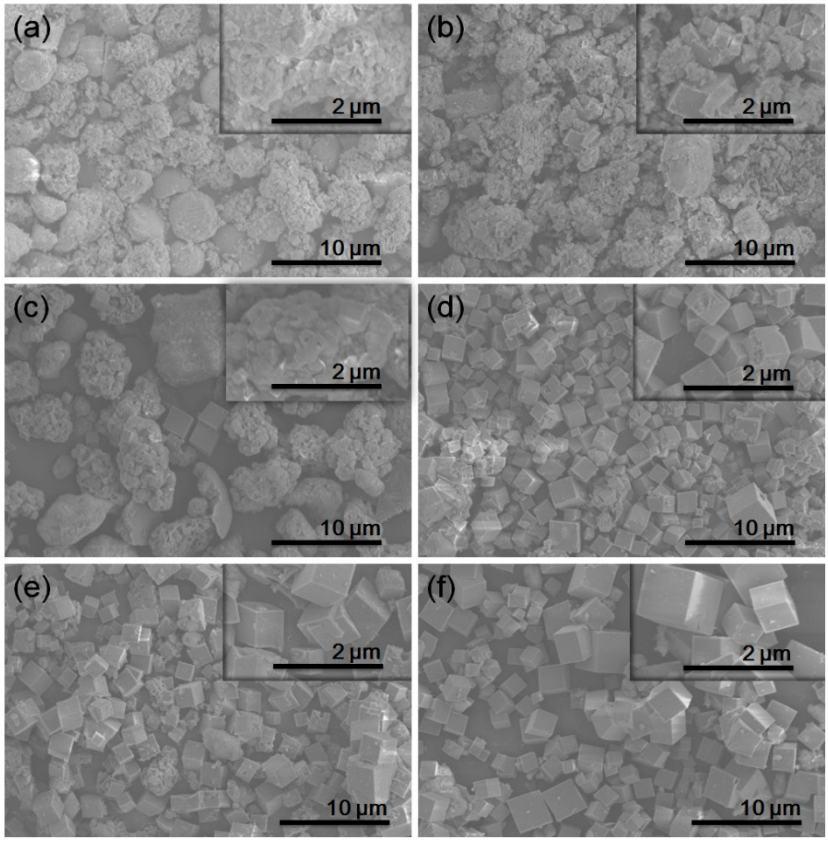

Fig. S4 SEM images of the different batches for SAPO-34 sample having CTAB molar ratio of 0.02 with different total crystallization time of 2 h (a), 4 h (b), 8 h (c), 16 h (d), 24 h (e) and 36 h (f)

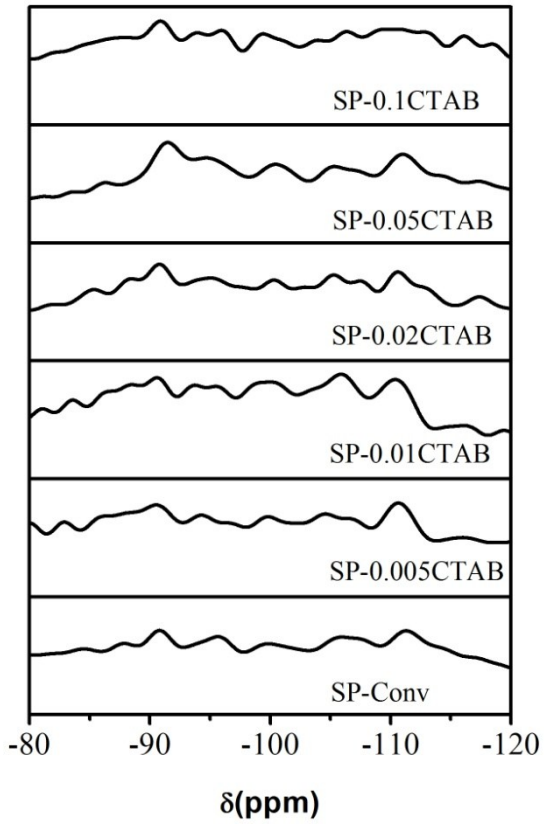

Fig. S5 ^{29}Si MAS NMR spectra of the conventional and CTAB-assisted synthesized SAPO-34 catalysts

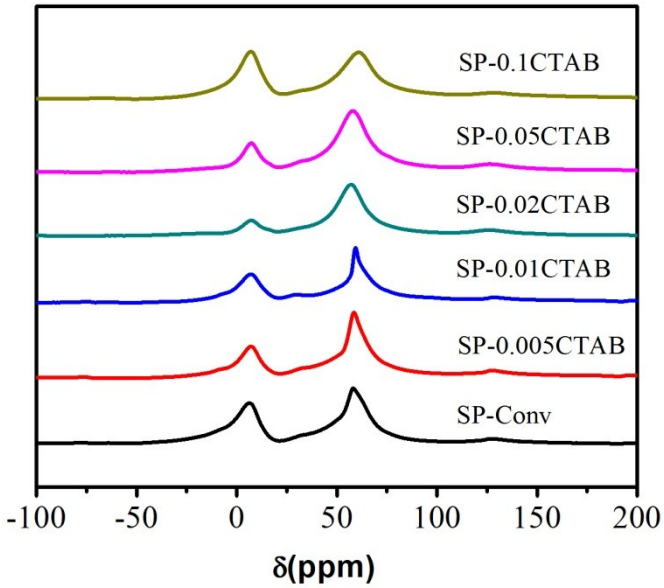

Fig. S6 ^{27}Al MASS NMR spectra of the conventional and CTAB-assisted SAPO-34 samples sample