Supplementary Information For:

Highly mesoporous SAPO-11 molecular sieves with tunable acidity: facile synthesis, formation mechanism and catalytic performance in hydroisomerization of *n*-dodecane

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Figure Captions:

Fig. S1. TEM image of the silicoaluminophosphate dry gel.

Fig. S2. N_2 adsorption isothermal and corresponding BJH pore size distributions of (a) silicoaluminophosphate dry gel and (b) silcoaluminophosphate-organosilane composite.

Table S1 Texture properties of the silicoaluminophosphate (SAP) dry gel and the silicoaluminophosphate-organosilane composite (SOC).

Fig. S3. (a) TG and (b) DSC curves of samples SAPO-11-C and SAPO-11-H1.

Table S2 SAPO-11 acidity measurement by Py-IR at different temperatures.

Fig. S4. XRD patterns of the products prepared with different reaction times SAPO-11-H7 (1h), SAPO-11-H8 (3h), SAPO-11-H9 (6h), SAPO-11-H10 (9h), SAPO-11-H11 (12h) and SAPO-11-H12 (18h).

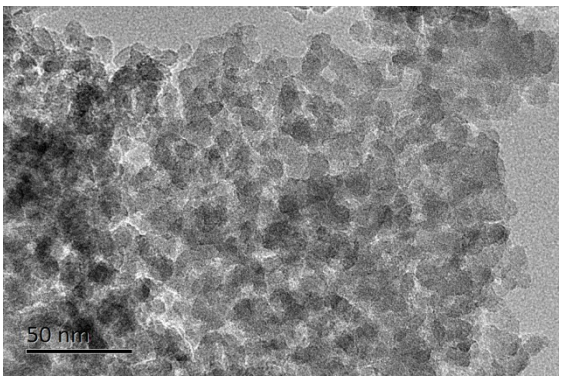
Fig. S5. SEM images of samples prepared with different reaction times (a), (b) SAPO-11-H8; (c), (d) SAPO-11-H9; (e), (f) SAPO-11-H10; (g), (h) SAPO-11-H11 and (i), (j) SAPO-11-H12.

Table S3 Texture properties of the calcined samples prepared with different reaction times.

Fig. S6. NH_3-TPD curves of products prepared with different reaction times.

Fig. S7. TG curves of products prepared with different reaction times.

Fig. S8. TEM image of the Pt/SAPO-11-H1 catalyst.



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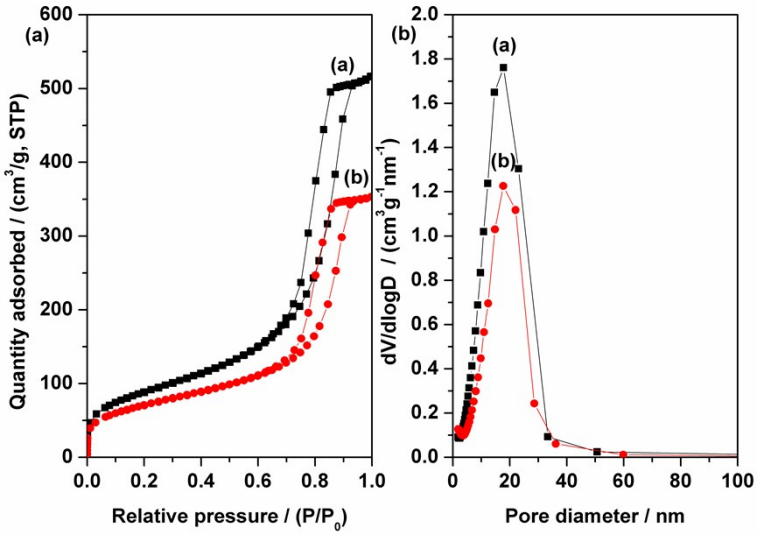

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Table S1 Texture properties of the silicoaluminophosphate (SAP) dry gel and the silicoaluminophosphate-organosilane composite (SOC).

Sample	Surface area /(m^2/g)			Pore volume /(cm^3/g)	
	S_{BET}[a]	S_{micro}[b]	S_{ext}[c]	V_{total}	V_{micro}[d]
SAP	324	27	296	0.80	0.01
SOC	253	38	215	0.53	0.02

[a] BET surface area, [b] t-plot micropore surface area, [c] t-plot external surface area, [d] t-plot micropore volume.

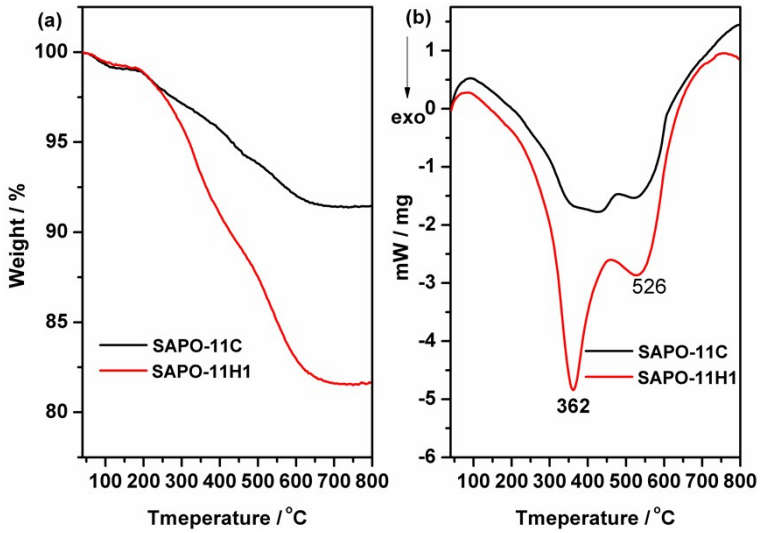
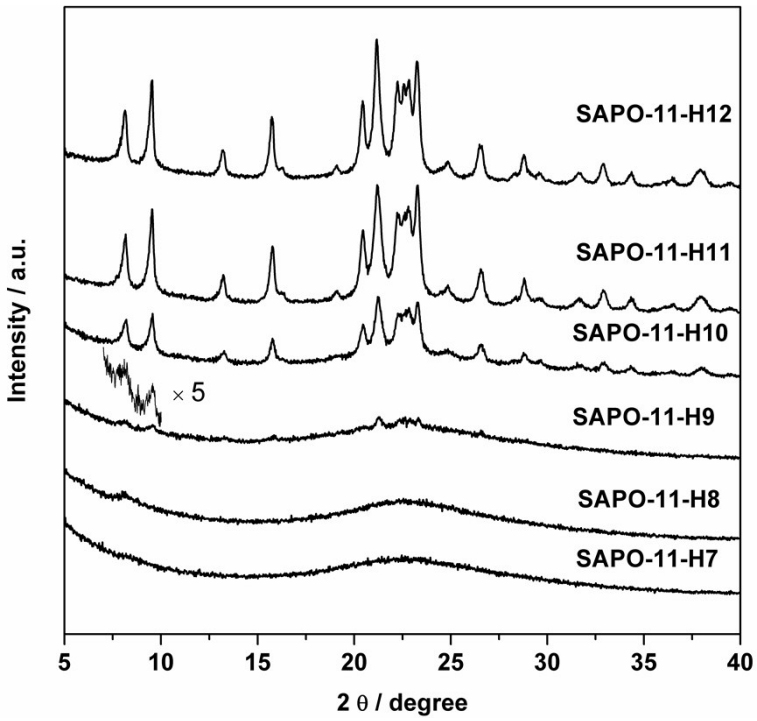


Fig. S3. (a) TG and (b) DSC curves of samples SAPO-11-C and SAPO-11-H1.

Table S2

SAPO-11 acidity measurement by Py-IR at different temperatures.

Sample	Brønsted (μmol Py/g)			Lewis (μmol Py/g)		
	150 °C	250 °C	350 °C	150 °C	250 °C	350 °C
SAPO-11-C	59.2	45.3	28.9	20.1	11.8	11.6
SAPO-11-H3	29.9	12.8	2.9	18.6	6.4	3.5
SAPO-11-H4	39.5	24.1	12.6	12.1	7.8	5.3
SAPO-11-H1	50.4	28.3	14.5	23.5	9.2	6.9
SAPO-11-H5	57.4	30.3	15.1	15.6	12.7	10.0
SAPO-11-H6	58.8	36.0	19.3	19.2	9.1	8.5



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SAPO-11-H8 (3h), SAPO-11-H9 (6h), SAPO-11-H10 (9h), SAPO-11-H11 (12h) and SAPO-11-H12 (18h).

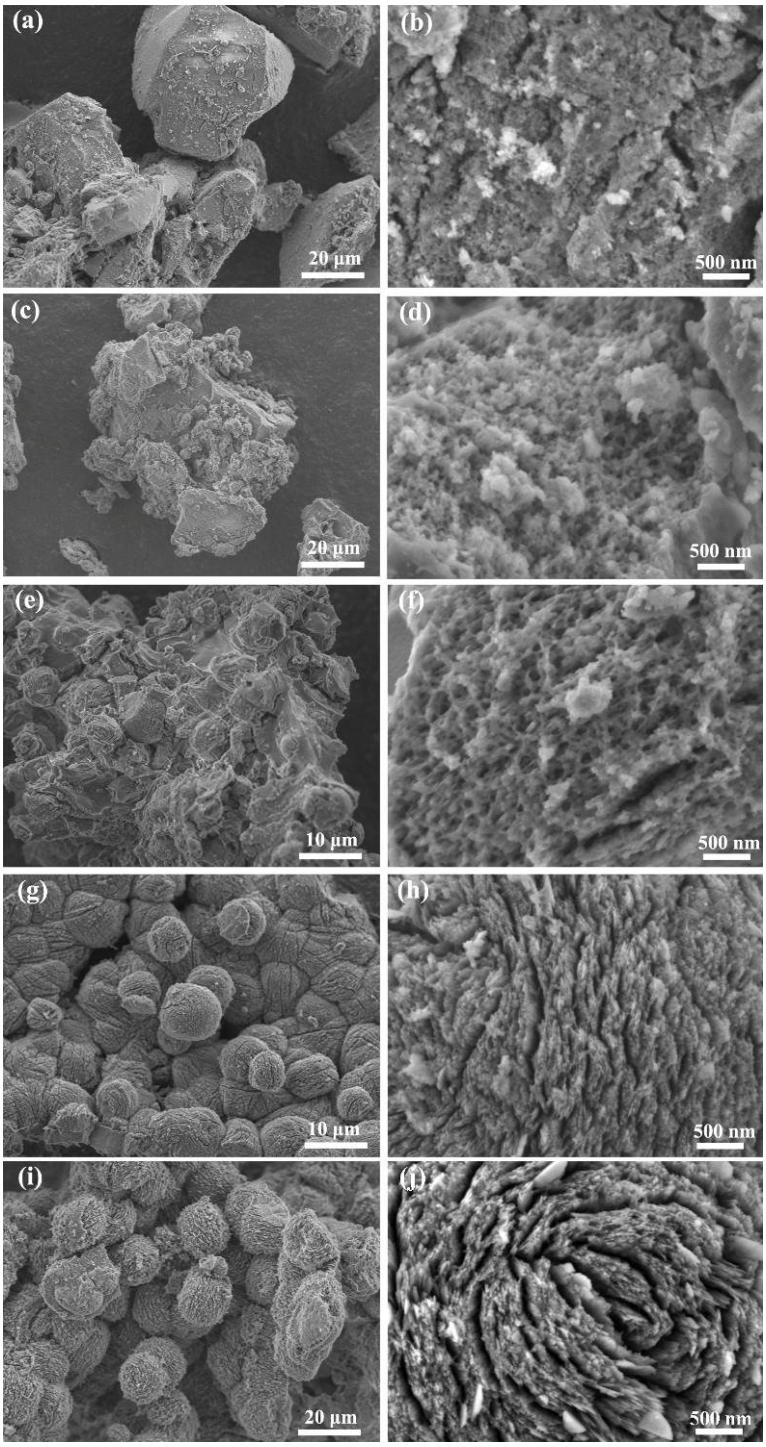


Fig. S5. SEM images of samples prepared with different reaction times (a), (b) SAPO-11-H8; (c), (d) SAPO-11-H9; (e), (f) SAPO-11-H10; (g), (h) SAPO-11-H11 and (i), (j) SAPO-11-H12.

Table S3

Texture properties of the calcined samples prepared with different reaction times.

Sample	Surface area /(m^2/g)			Pore volume /(cm^3/g)	
	S_{BET}[a]	S_{micro}[b]	S_{ext}[c]	V_{total}	V_{micro}[d]
SAPO-11-H7	7.4	0.42	7.0	0	0
SAPO-11-H8	79	0	79	0.12	0
SAPO-11-H9	355	0	355	0.36	0
SAPO-11-H10	345	57	288	0.37	0.02
SAPO-11-H11	352	160	192	0.30	0.07
SAPO-11-H12	358	165	193	0.31	0.07

[a] BET surface area，[b] t-plot micropore surface area，[c] t-plot external surface area，[d] t-plot micropore volume.

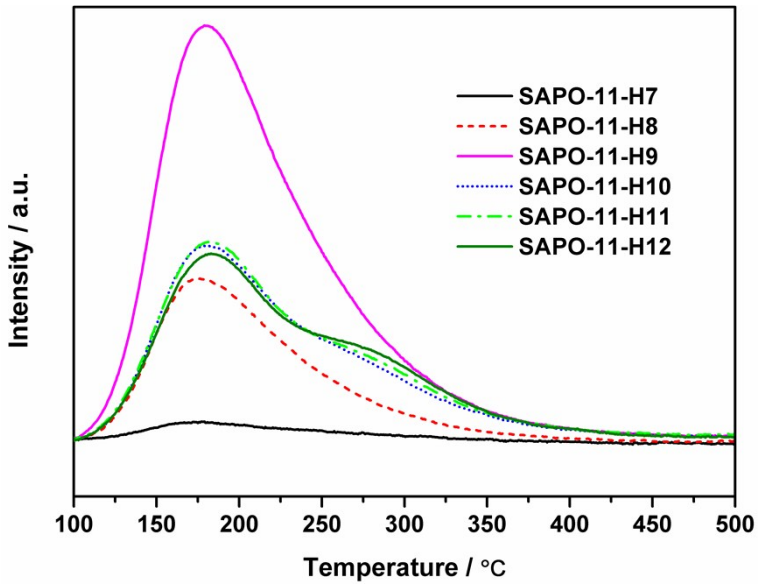


Fig. S6. NH_3-TPD curves of products prepared with different reaction times.

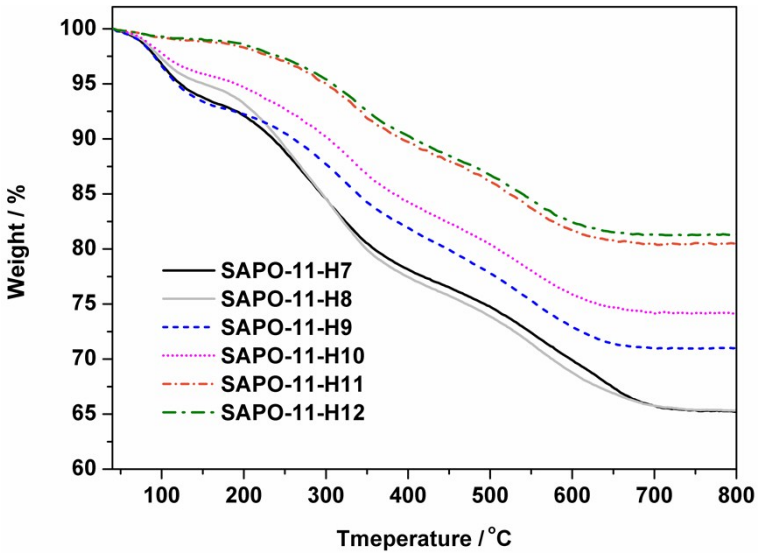
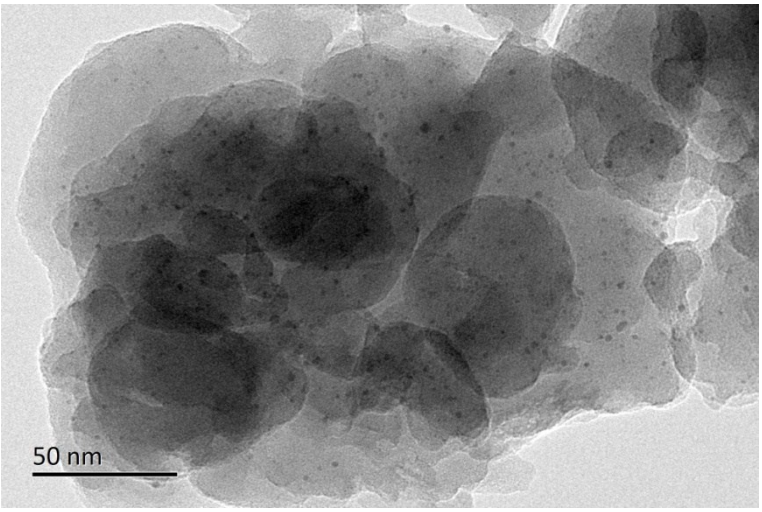


Fig. S7. TG curves of products prepared with different reaction times.



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