Supplementary Materials

Effects of Sn Promoter on the Ordered Mesoporous Co_3O_4-Al_2O_3 Mixed Metal Oxide for Fischer–Tropsch Synthesis Reaction

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Figure S1. Characteristics of the fresh Sn/m-CoAlOx catalysts; (A) N_2 adsorption-desorption isotherms and (B) Pore size distribution obtained from adsorption branch.

Figure S2. TEM images of the (A) unmodified m-CoAlOx and (B) Sn(7)/m-CoAlOx.

Figure S3. CO-TPD profiles on the reference m-CoAlOx catalyst (**Figure 2(B)**), which were obtained from TCD and mass spectrometer with m/z = 28 (CO) and 44 (CO_2).

Figure S4. XPS spectra of Sn $3d_{5/2}$ peak on the fresh (reduced) Sn/m-CoAlOx.

Figure S5. Temperature effects to product distributions (**Figure 3(B)**) on the (A) m-CoAlOx and (B) Sn(7)/m-CoAlOx.

Table S1. Temperature effects to product distributions (**Figure 3(B)**) on the (A) m-CoAlOx and (B) Sn(7)/m-CoAlOx.

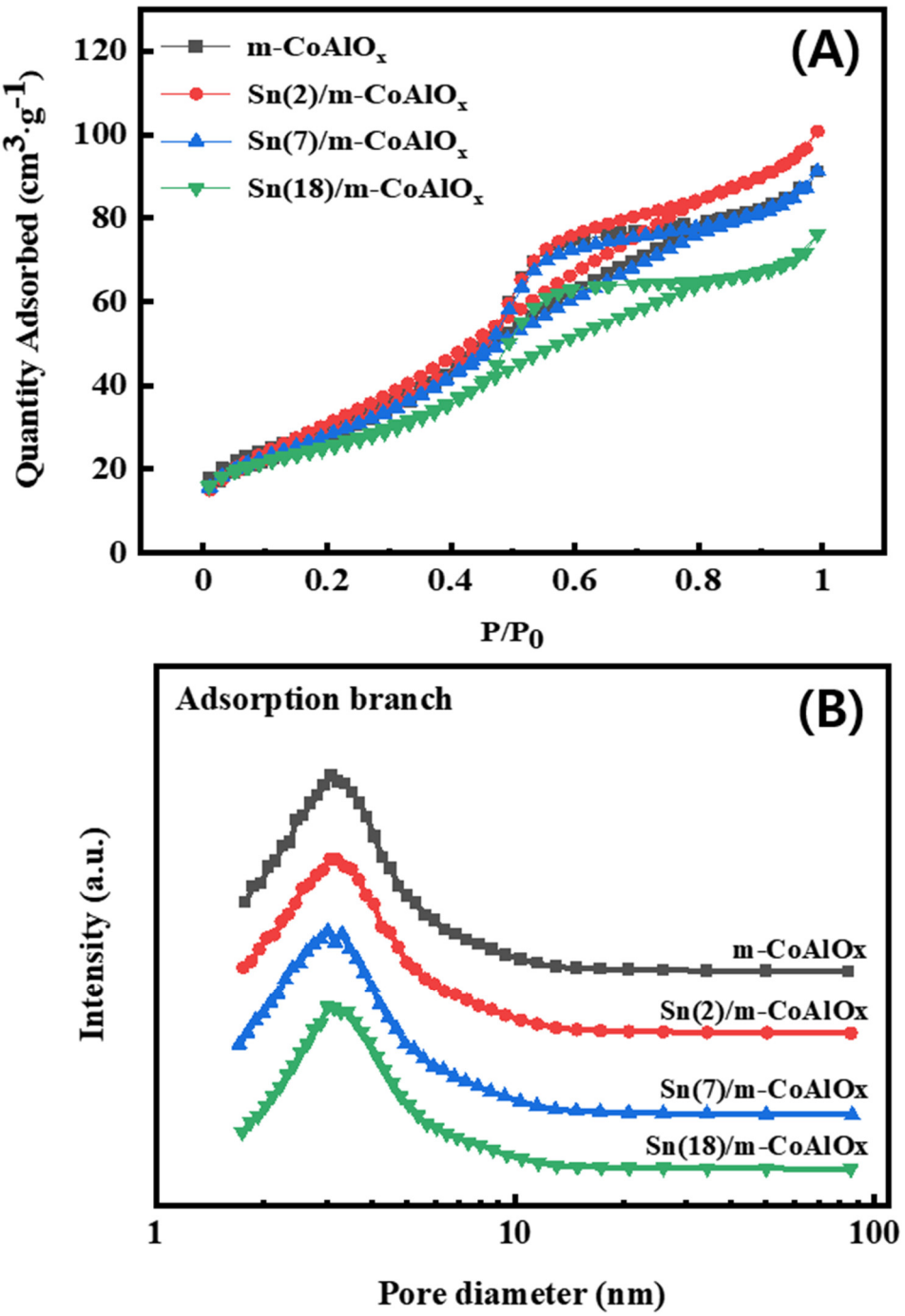


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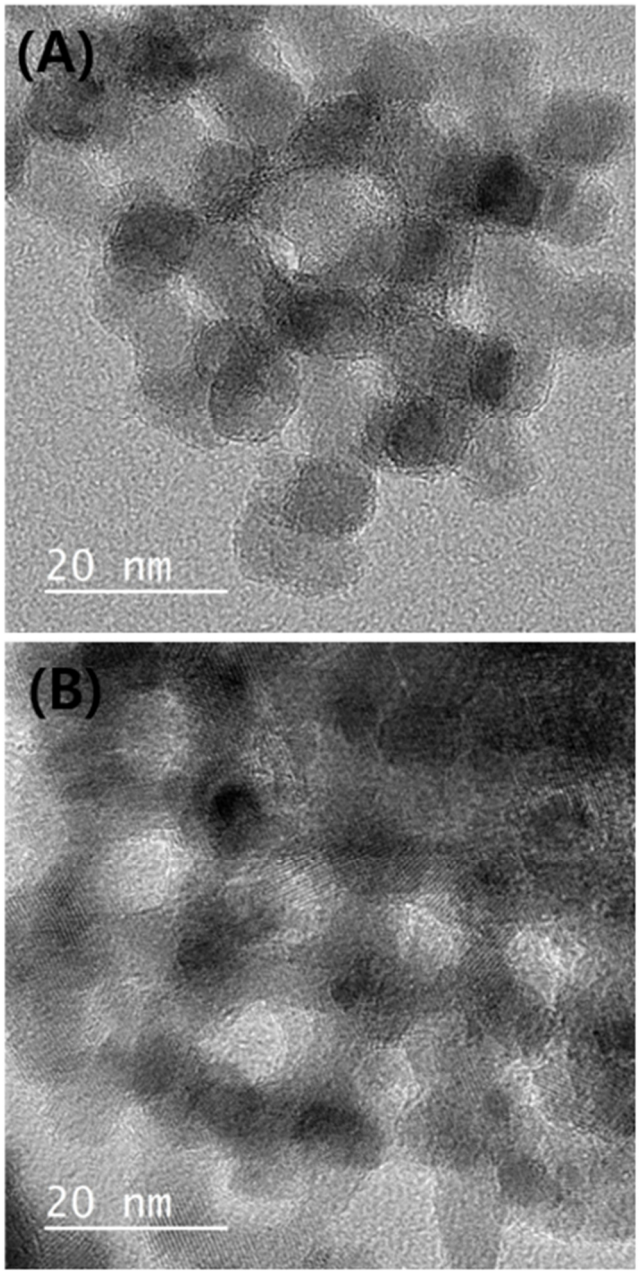


Figure S2. TEM images of the (A) unmodified m-CoAlOx and (B) Sn(7)/m-CoAlOx.

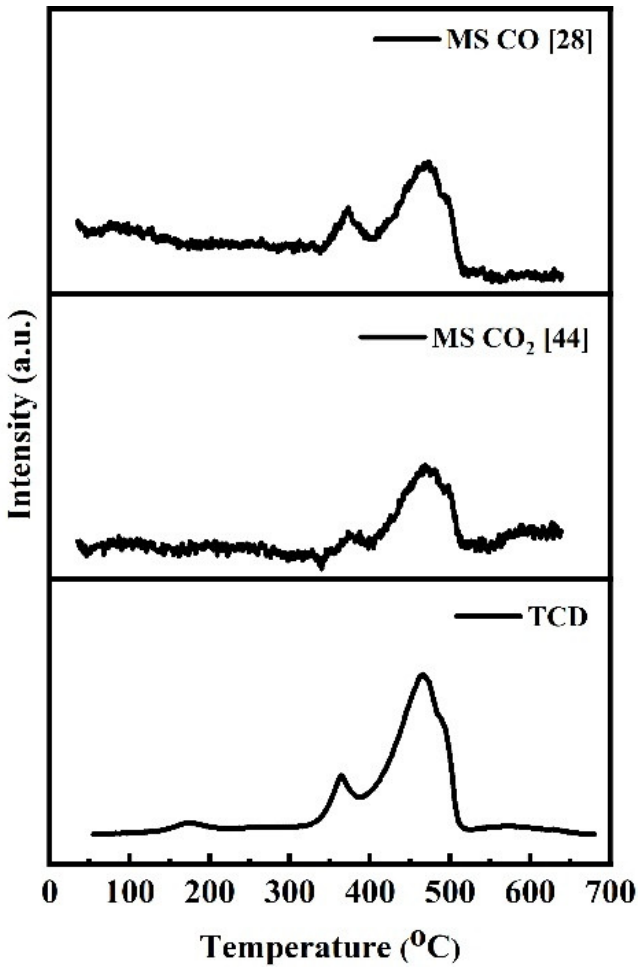


Figure S3. CO-TPD profiles on the reference m-CoAlOx catalyst (**Figure 2(B)**), which were obtained from TCD and mass spectrometer with m/z = 28 (CO) and 44 (CO_2).

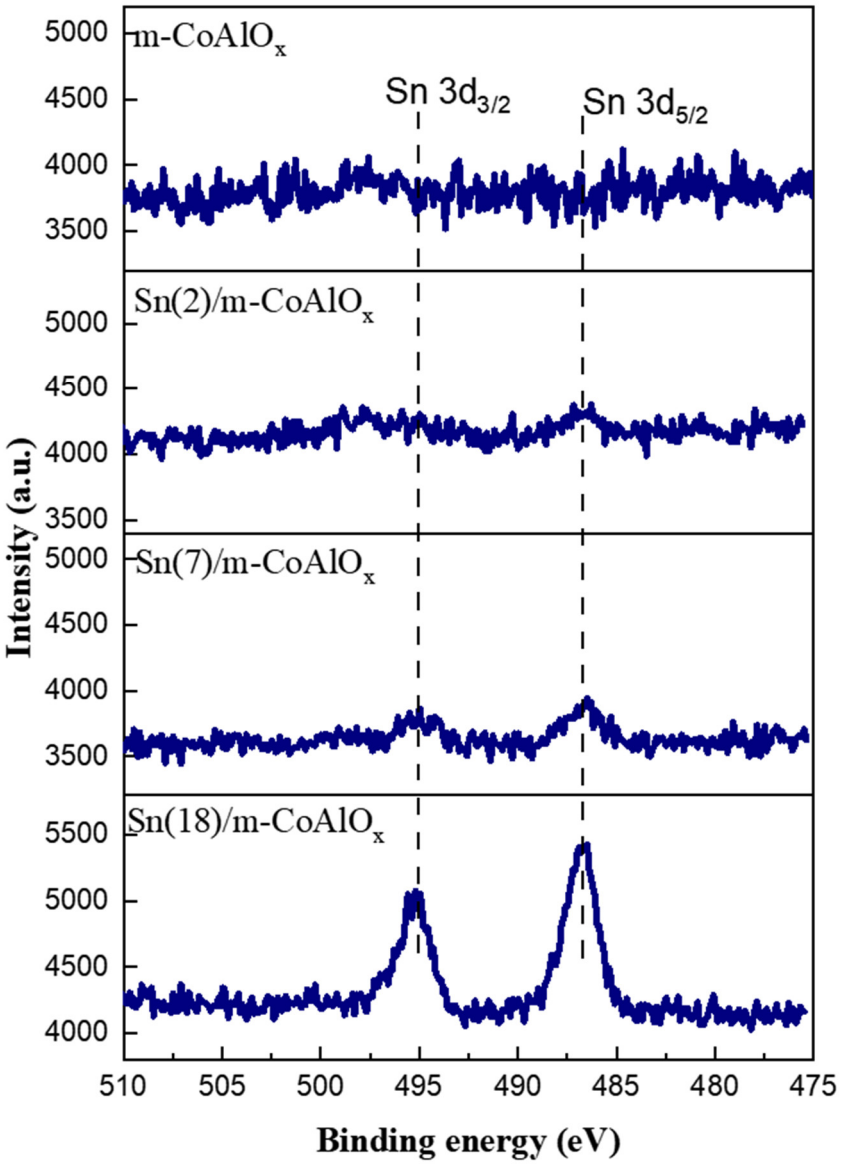


Figure S4. XPS spectra of Sn $3d_{5/2}$ peak on the fresh (reduced) Sn/m-CoAlOx.

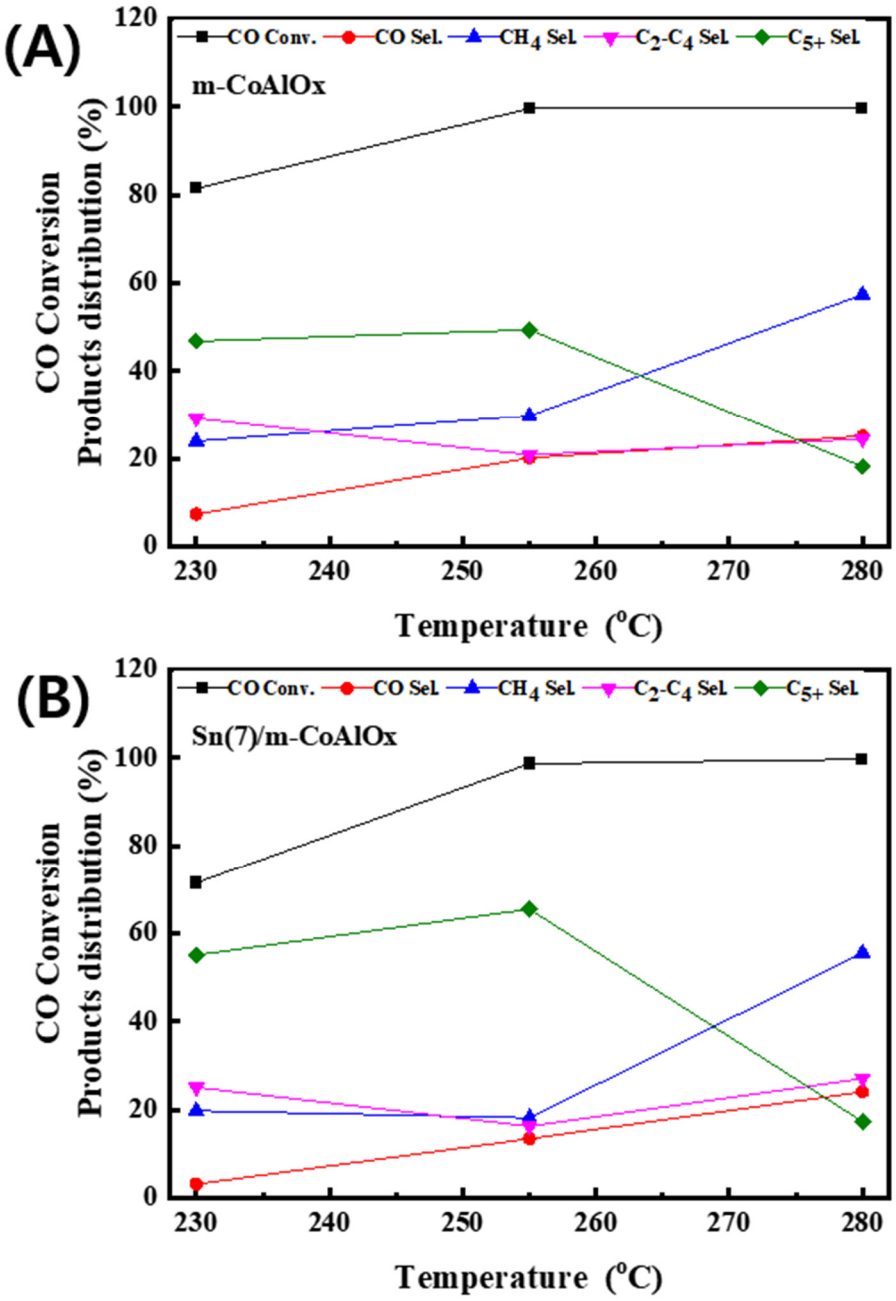


Figure S5. Temperature effects to product distributions (**Figure 3(B)**) on the (A) m-CoAlOx and (B) Sn(7)/m-CoAlOx.

Table S1. Temperature effects to product distributions (**Figure 3(B)**) on the (A) m-CoAlOx and (B) Sn(7)/m-CoAlOx.

Catalyst	Temperature (°C)	CO conv. (C-mol%)	CO conversion to CO_2 (C-mol%)	Product distribution (C-mol%)		
				C_1	C_2-C_4	C_{5+}
m-CoAlOx	230	81.5	7.4	24.0	29.2	46.8
	255	99.6	20.1	29.8	20.8	49.4
	280	99.7	25.1	57.4	24.5	18.2
Sn(7)/m-CoAlOx	230	71.5	3.2	19.8	25.1	55.1
	255	98.7	13.5	18.2	16.3	65.5
	280	99.7	24.1	55.6	27.1	17.3

[a]Catalytic activity and product distribution on the selected m-CoAlOx and Sn(7)/m-CoAlOx were measured at the reaction conditions of P = 2.0 MPa, weight hourly space velocity (SV) = 8,000 L/(kg_{cat}·h) and a feed gas composition of $H_2/N_2/CO$ = 63.0/31.5/5.5 (mol%).