

Electronic Supplementary Information

Effects of Sn on the catalytic performance for one step syngas to DME in Slurry Reactor

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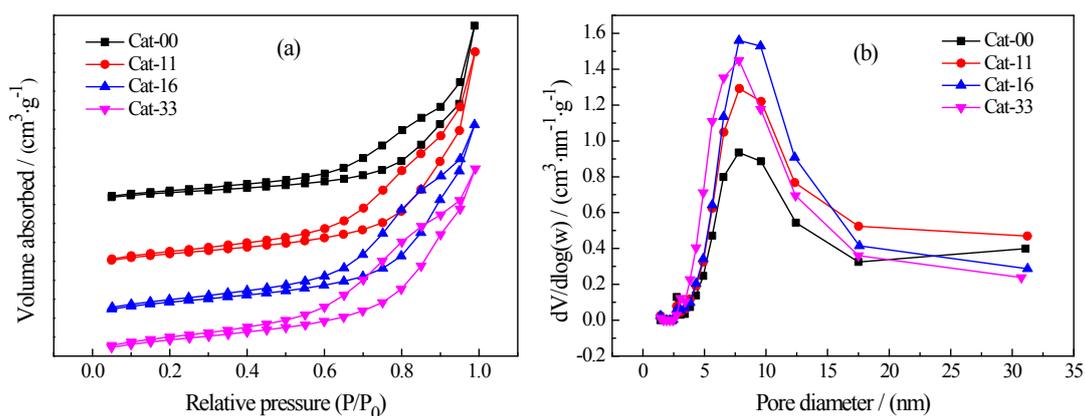


Fig.S1. N₂-adsorption-desorption isotherms(a) and pore size distribution curves(b) of parent and Sn-modified catalysts

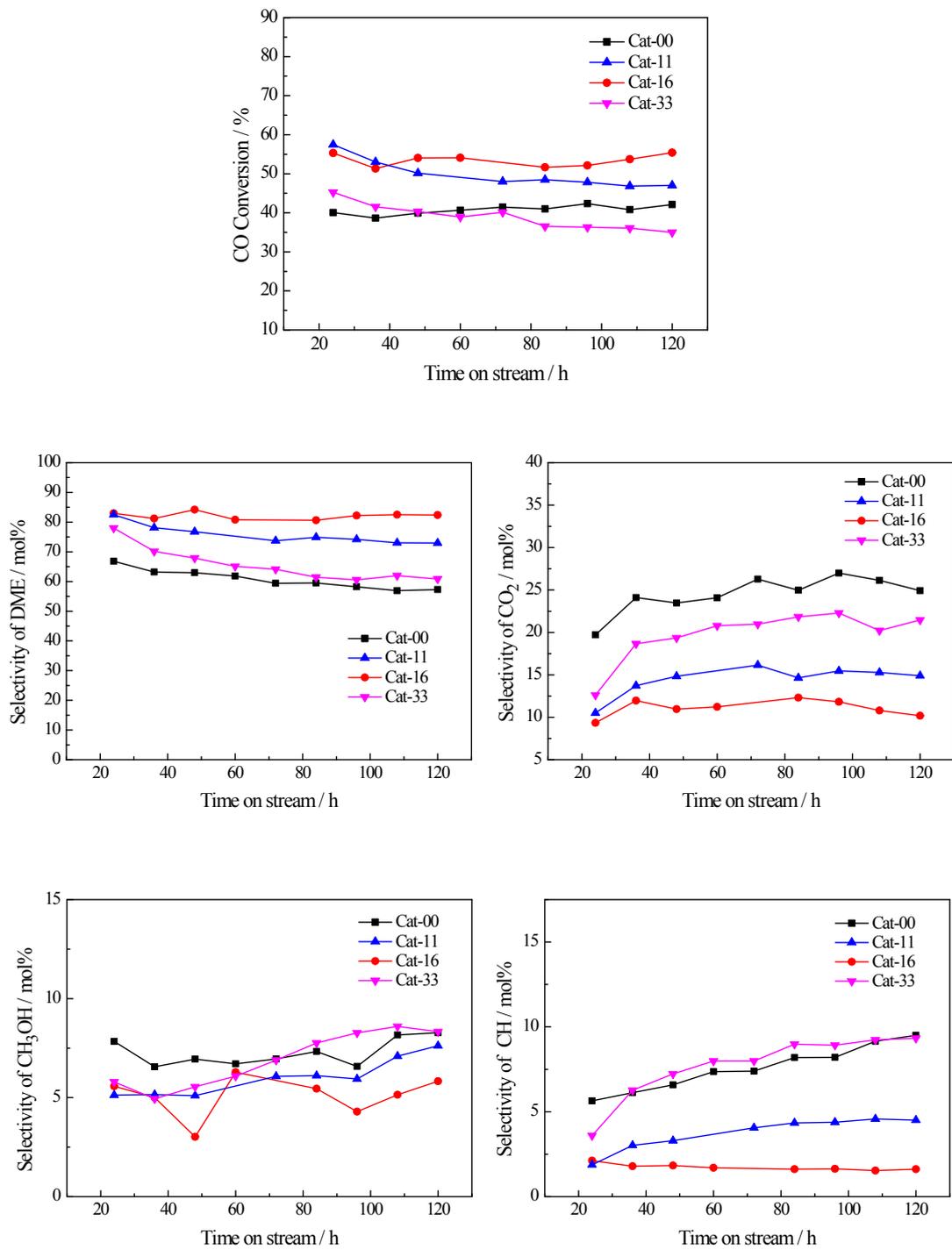


Fig.S2. The catalytic activity and product distribution (mol%) of parent and Sn-modified catalysts

Reaction condition: T = 280 °C, P = 4.0 MPa, H₂/CO = 1:1

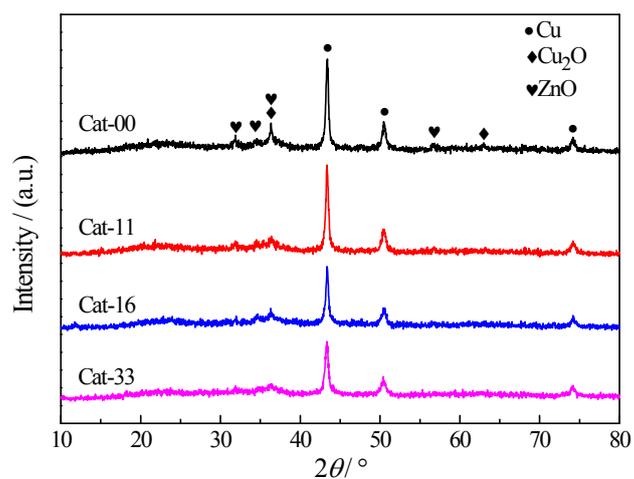


Fig.S3 XRD patterns of parent and Sn-modified catalysts after reaction

Table S1 Results of N₂ adsorption-desorption, XRD and XPS over parent and Sn-modified catalysts after reaction

Catalyst	N ₂ adsorption-desorption			Average grain size (nm) ^b	Surface Al/Sn ^c	Surface Cu/Zn ^c	Surface (Cu+Zn)/Al ^c
	BET surface area (m ² /g)	Average pore diameter (nm) ^a	Pore volume (cm ³ /g)				
Cat-00	179.5	0.77	18.4	22.5	---	0.21	0.47
Cat-11	209.7	0.93	17.8	22.8	218.86	0.21	0.44
Cat-16	188.6	0.88	18.7	23.2	131.80	0.37	0.28
Cat-33	218.6	0.79	14.5	19.3	33.11	0.17	0.43

^a Average pore diameter was calculated by desorption data.

^b Average grain size of Cu was calculated by Scherrer Formula ($2\theta = 43.4^\circ$)

^c Surface element was obtained by XPS

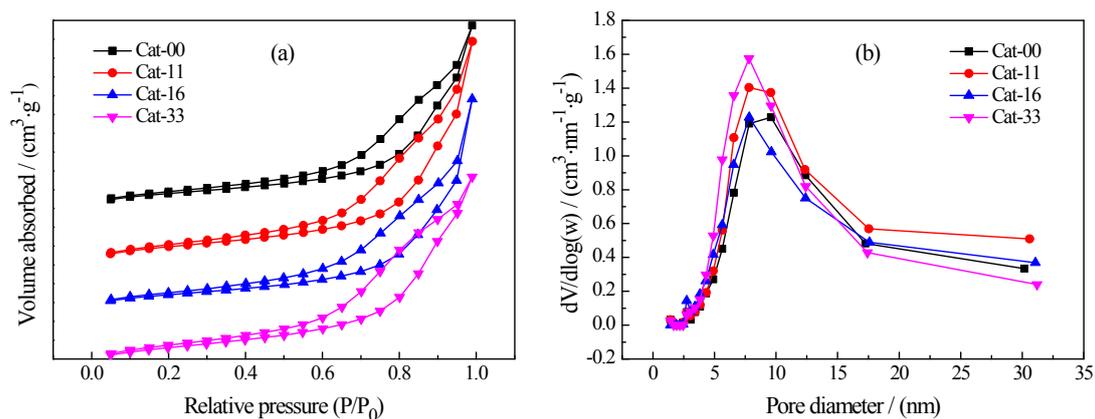


Fig.S4. N₂-adsorption-desorption isotherms and pore size distribution curves of parent and Sn-modified catalysts after reaction

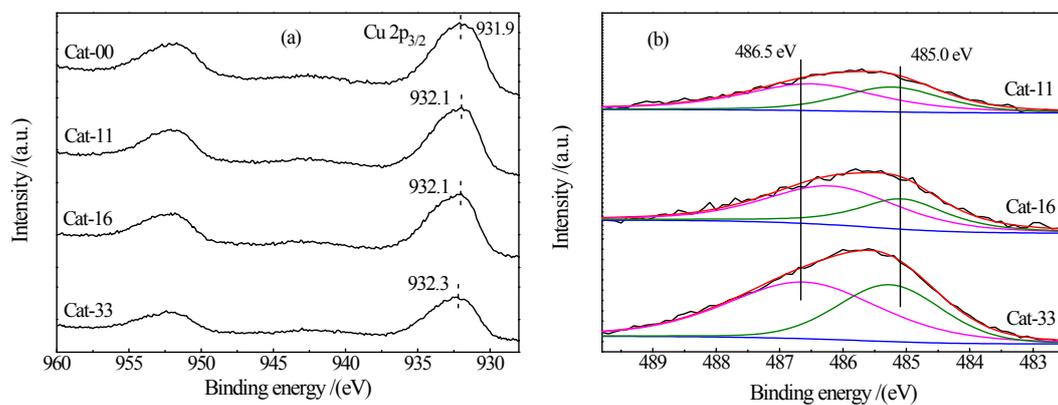


Fig.S5. XPS spectra of parent and Sn-modified catalysts after reaction (a)Cu 2p_{3/2} region (b) Sn 3d_{5/2} region