

## Supporting information

### Semi-hydrogenation of acetylene to ethylene catalyzed by bimetallic CuNi/ZSM-12 catalysts

**Table S1.** Comparison of the activity and TOF of different catalysts that previous reports.

Catalyst	GHSV ( $\text{ml}\cdot\text{g}^{-1}\cdot\text{h}^{-1}$ )	T ( $^{\circ}\text{C}$ )	Conv. acetylene%	Select. ethylene%	TOFs ( $\times\text{s}^{-1}$ )	Ref.
AgPd <sub>0.025</sub> /SiO <sub>2</sub>	60000	120	93	80	0.024	[11]
Pd/ZnO	18000	60	100	90	-	[34]
Pd-Ti/SiO <sub>2</sub>	~	70	70	80	-	[35]
Pd/MCM-41	2318	200	100	82.87	-	[36]
Pd <sub>1</sub> /N-graphene	~	125	99	93.5	-	[37]
Au/Al <sub>2</sub> O <sub>3</sub>	~	250	~	100	-	[38]
Au/3%MgO <sub>x</sub> -Al <sub>2</sub> O <sub>3</sub>	17200	250	45	100	0.02	[39]
Ni/MCM-41	12000	250	100	47	-	[31]
Ag-Ni/SiO <sub>2</sub>	60000	160	98	31.4	0.04	[40]
Si-Ni-Zn/SiO <sub>2</sub>	~	200	97	80	-	[41]
Ni <sub>6</sub> In/SiO <sub>2</sub>	36000	180	100	64	-	[27]
NiCu <sub>0.125</sub> /MC M-41	8000	250	100	63	2.04	[15]
PdSn/MWNTs	~	180	100	96	-	[42] 42
Pd/SiO <sub>2</sub> -T	15000	110	100	80		[43] 43
<b>Ni<sub>7</sub>Cu/ZSM-12</b>	36000	250	65.73	42.06	2.40	<b>This work</b>