

**Supplementary Information for:**

**Acetylene hydrochlorination over the boron-doped Pd/HY zeolite catalysts**

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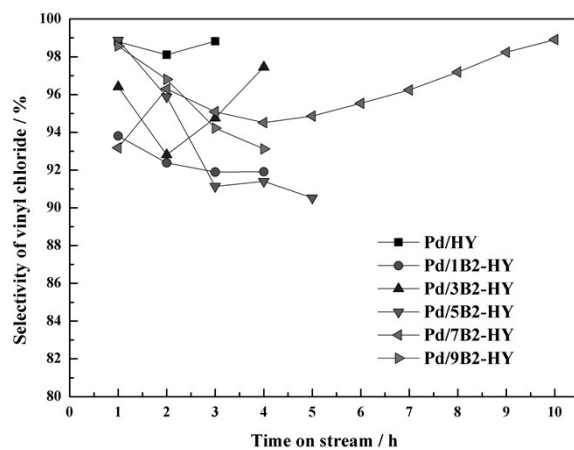
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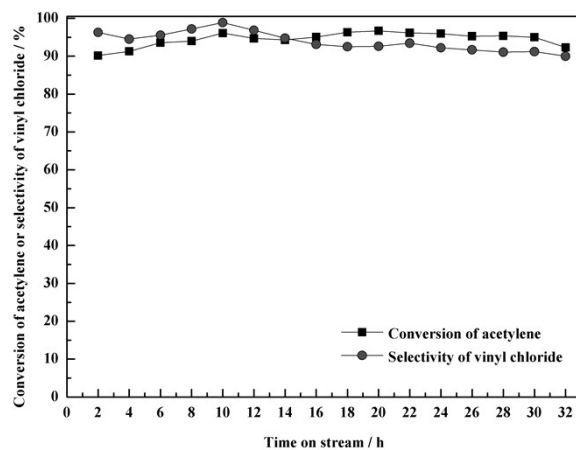
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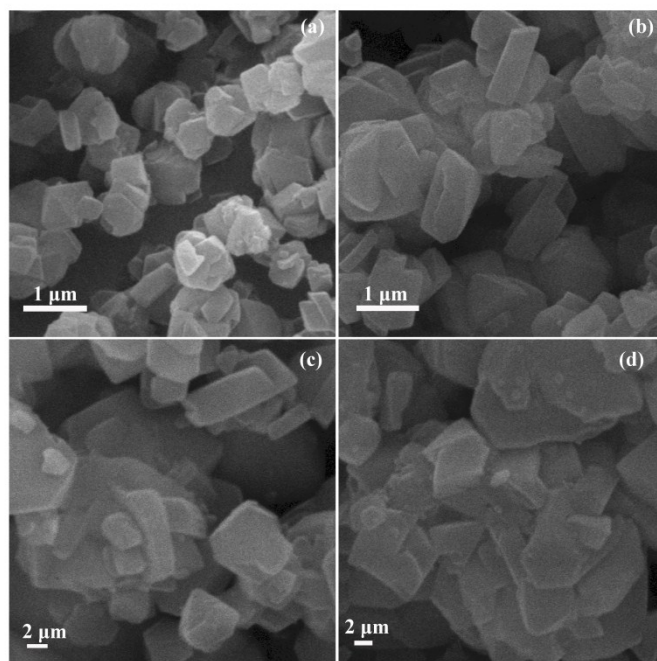
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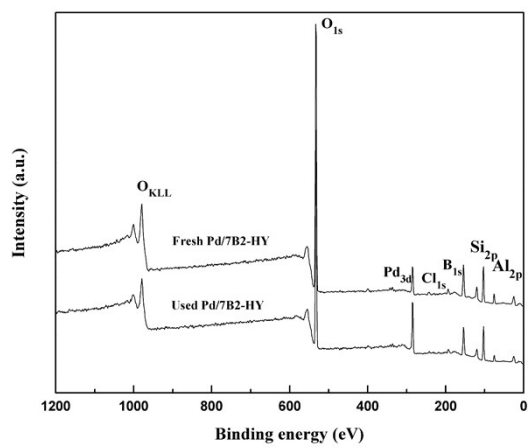
**Fig.S1** The selectivity to vinyl chloride over Pd-based catalysts, Reaction condition: Temperature = 160 °C, feed volume ratio  $V_{\text{HCl}}: V_{\text{C}_2\text{H}_2} = 1.25$ ,  $\text{C}_2\text{H}_2$  GHSV = 110  $\text{h}^{-1}$ .



**Fig.S2** The catalytic performance of the Pd/7B2-HY catalysts, Reaction condition: Temperature = 160 °C, feed volume ratio  $V_{\text{HCl}}:V_{\text{C}_2\text{H}_2}= 1.25$ ,  $\text{C}_2\text{H}_2$  GHSV = 110 h<sup>-1</sup>.



**Fig.S3** SEM images of HY (a), 7B2-HY (b), fresh Pd/7B2-HY (c) and used Pd/7B2-HY (d).



**Fig.S4** Wide scan spectra of XPS over fresh and used Pd/7B2-HY catalysts.

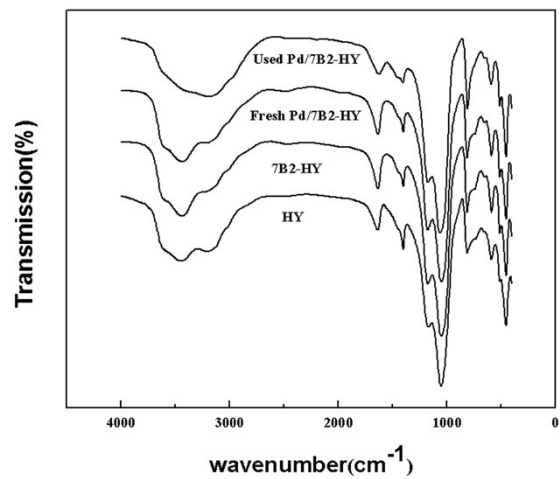


Fig.S5 NH<sub>3</sub>-TPD profiles of the fresh Pd-based catalysts.

**Table.S1** EDS analysis of samples

Samples	C/ wt%	Si/ wt%	Al/ wt%	O/ wt%	Cl/ wt%	B/ wt%	Pd/ wt%
HY	0	31.55	7.64	59.88	0.93	0	0
7B2-HY	0	34.64	6.89	55.35	1.02	2.10	0
Fresh Pd/7B2-HY	0	33.62	5.10	56.73	1.95	2.09	0.51
Used Pd/7B2-HY	12.69	29.67	2.54	52.75	2.18	0	0.17

**Table.S2** The results of GC-MS.

<b>Compounds</b>	<b>Percentage by mass (Pd/HY)</b>	<b>Percentage by mass (Pd/7B2-HY)</b>
Vinyl chloride	0.02%	0.30%
Benzene	0.09%	0.30%
Chlorobenzene	0.08%	0.02%
1,1-dichloroethane	0.04%	0.40%
1-chlorobutylene	0.02%	0.02%

Analysis conditions are as follows:

Agilent 7890A/5975C GC-MS; chromatographic column J&W 122-1364: 60 m × 0.25 mm × 1.4 μm; inlet temperature, 250 °C; split ratio, 5.0:1; ion source, EI source; ion source temperature, 230 °C; quadrupole temperature, 150 °C; electron energy, 70 eV; interface temperature, 280 °C.