

**Supplementary Information for:**

**Design of choline chloride modified USY zeolites for Palladium-catalyzed  
acetylene hydrochlorination.**

Zeqing Long<sup>a#</sup>, Lu Wang<sup>a##</sup>, Haijun Yan<sup>a</sup>, Jianxin Si<sup>a</sup>, Meng Zhang<sup>a</sup>, Jide Wang<sup>a</sup>,

Ling Zhao<sup>ab</sup>, Chao Yang<sup>a</sup>, Ronglan Wu<sup>a</sup>

<sup>a</sup>Key Laboratory of Oil and Gas Fine Chemicals, Ministry of Education and Xinjiang  
Uyghur Autonomous Region, School of Chemical Engineering and Technology,  
Xinjiang University, Urumqi 830017, China

<sup>b</sup>State Key Laboratory of Chemical Engineering, School of Chemical Engineering,  
East China University of Science and Technology, Shanghai 200237, China

\*Corresponding author:

Tel: +86-0991-8581018; Fax: +86-0991-8581018

E-mail: wanglu\_4951@163.com

#The two authors contributed equally to this work.

**Figure Captions:**

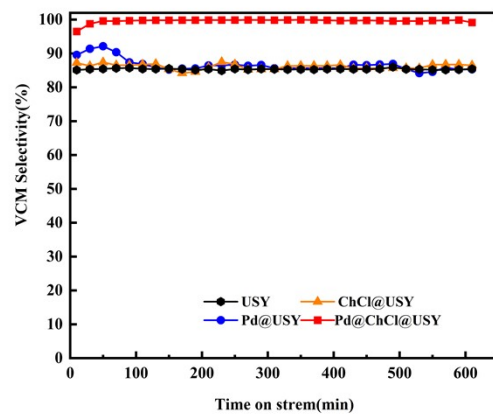
**Fig S1** VCM Selectivity of USY-based catalysts.

**Fig S2** Acetylene conversion (a) and VCM selectivity (b) of Pd-based catalysts with different impregnation method. Reaction conditions:  $T = 160\text{ }^{\circ}\text{C}$ ,  $\text{GHSV}(\text{C}_2\text{H}_2) = 120\text{ h}^{-1}$  and  $V_{\text{HCl}} : V_{\text{C}_2\text{H}_2} = 1.25$ .

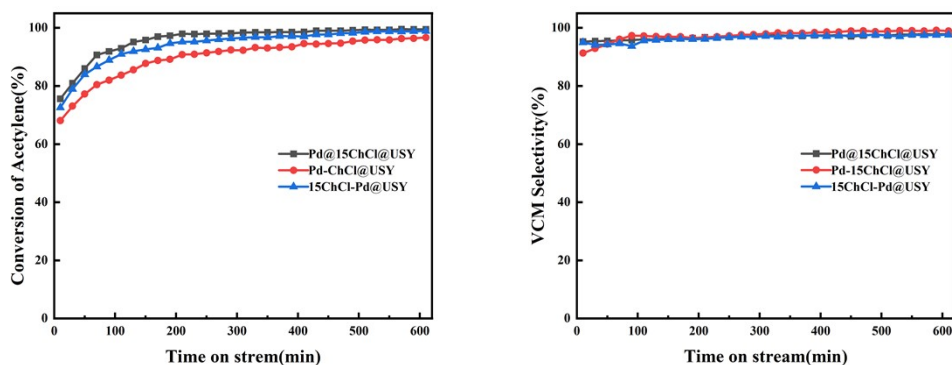
**Fig S3** XPS sweep scan of Pd-based catalysts.

**Table Captions:**

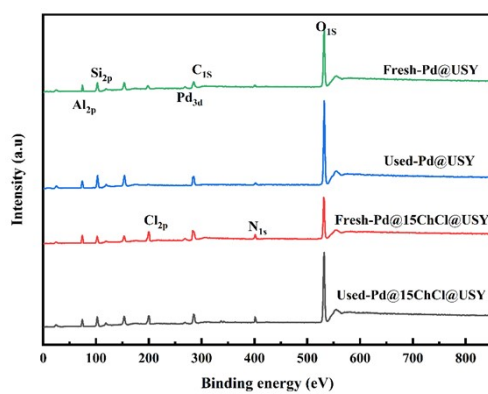
**Table S1** The B/L acidity ratio of the Pd-based catalysts



**Fig S1** VCM Selectivity of USY-based catalysts.



**Fig S2** Acetylene conversion (a) and VCM selectivity (b) of Pd-based catalysts with different impregnation method. Reaction conditions:  $T = 160\text{ }^{\circ}\text{C}$ ,  $\text{GHSV}(\text{C}_2\text{H}_2) = 120\text{ h}^{-1}$  and  $V_{\text{HCl}} : V_{\text{C}_2\text{H}_2} = 1.25$ .



**Fig S3** XPS sweep scan of Pd-based catalysts.

**Table S1** The B/L acidity ratio of the Pd-based catalysts.

Catalysts	B/L (u mol. g <sup>-1</sup> )
USY	1.96
Fresh-Pd@USY	1.03
Used-Pd@USY	0.78
15ChCl@USY	1.00
Fresh-Pd@15ChCl@USY	1.78
Used-Pd@15ChCl@USY	1.32