Supporting information

Tuning the hydrogenation activity of Pd NPs on Al-MIL-53 by linker modification

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Experimental

N_2 adsorption:

The Brunauer-Emmett-Teller (BET) specific surface areas (SBET) and the porosity of the samples were evaluated by N_2 adsorption isotherms measured at 77 K using a BELSORP-max nitrogen adsorption apparatus. All samples were degassed at 150 ^oC for 3 h before measurements. The BET surface area was determined using the adsorption data in the relative pressure (P/P_0) range of 0.05-0.35.

Temperature Programmed reduction:

An amount of 50 mg sample was mounted in a quartz tube and purged with 5 vol.% H_2 in Ar for 30 min at room temperature. The temperature ramp rate was 10 ^oC/min and the flow-rate was 25 ml/min in the TPR tests. The amount of H_2, which desorbed from the surface was detected by a thermal conductivity detector.

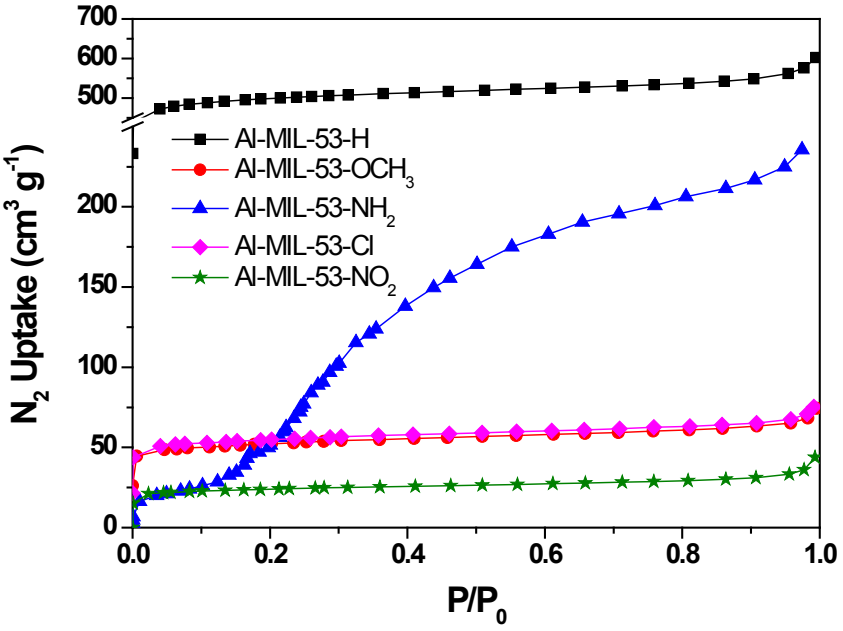

Figure S1 N_2 adsorption isotherms of Al-MIL-53-X (X=H, OCH_3, NH_2, Cl, and NO_2) materials after activation.

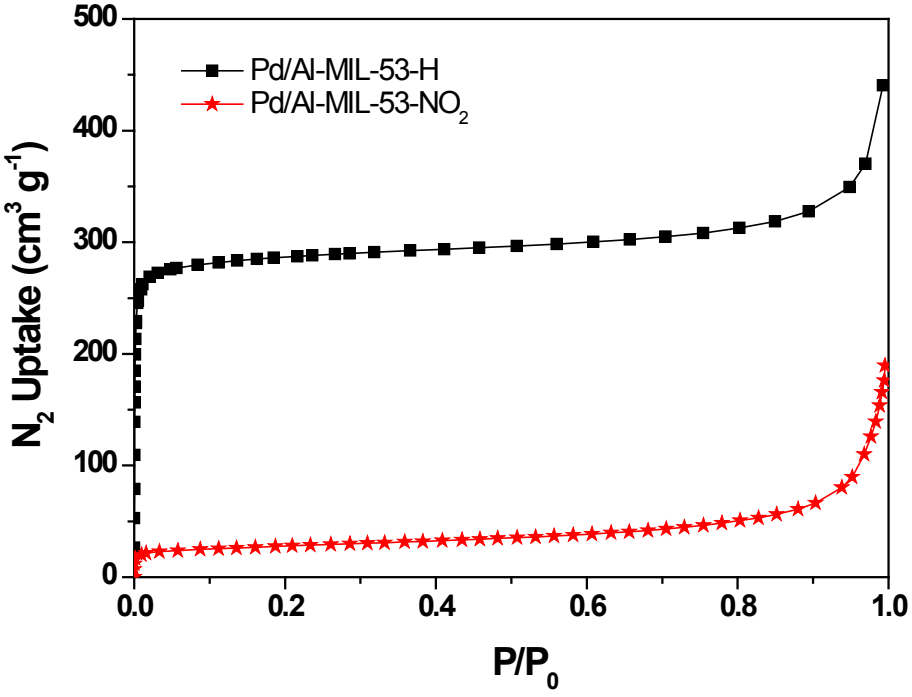

Figure S2 N_2 adsorption isotherms of Al-MIL-53-X (X=H and NO_2) supported Pd catalysts.

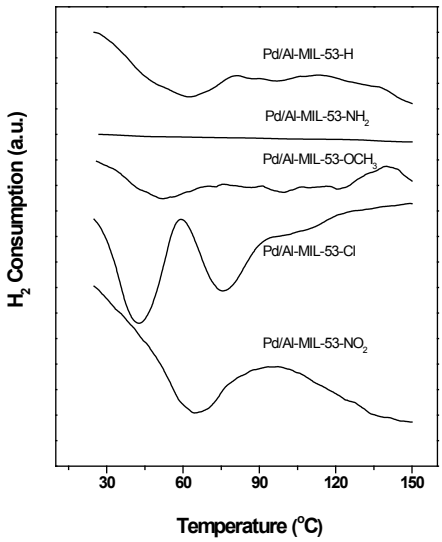

Figure S3 Temperature programmed reduction profiles of 3 wt.% Pd/Al-MIL-53-X (X=H, OCH_3, NH_2, Cl, and NO_2) catalysts in the temperature range of 20-150 ^{o}C.