Electronic Supplementary Material (ESI) for Sustainable Energy & Fuels.

Catalytic Decarbonylation of Stearic Acid to Hydrocarbons over Activated Carbon-supported Nickel

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The band located around 3425 cm^{-1} corresponds to ν(O-H) vibrations in hydroxyl group. The ν(O-H) vibrations in esters, ether or phenol groups cause the bands between 900-1300 cm^{-1}. The bands located around 663 and 1569 cm^{-1} ascribes to γ(O-H) vibration and ν(C=C) vibration in aromatics group respectively.[1] Therefore, the main surface functional groups associated with Ni/AC were hydroxyl, esters, aromatics groups.

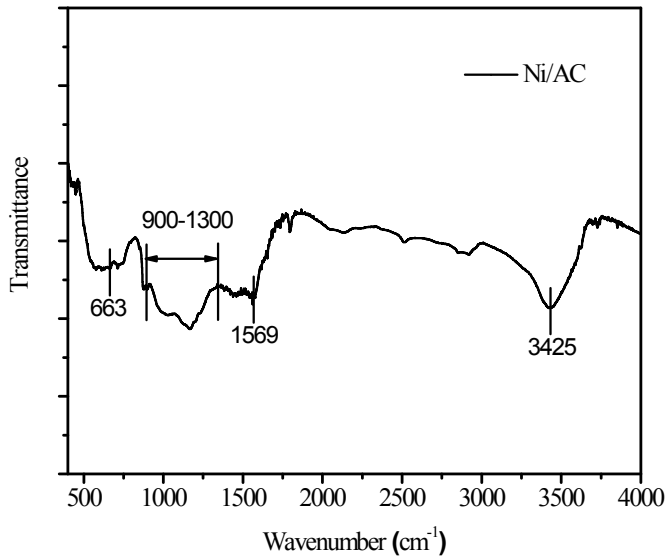

Figure S1. Fourier transform infrared spectra of Ni/AC

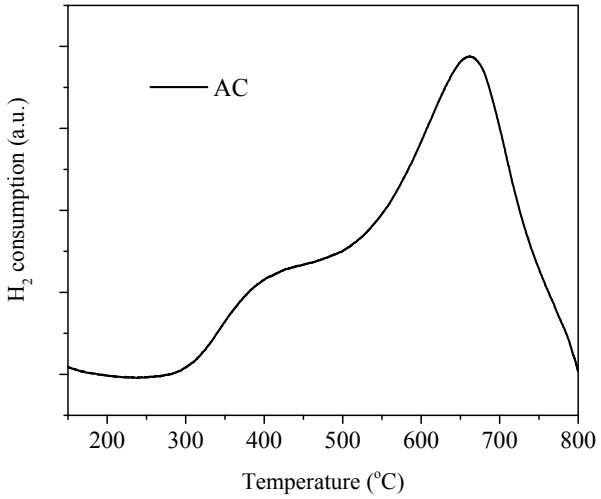

Figure S2. H_2-TPR result of AC

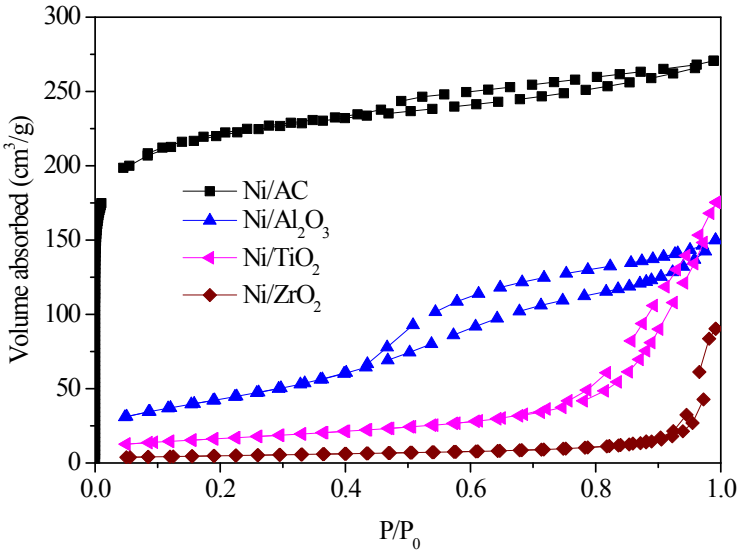

Figure S3. N_2 adsorption-desorption isotherms of four Ni-based catalysts

1. A. C. Lua and T. Yang, *J. colloid interf. sci.*, 2004, **274**, 594-601.