

# Supplementary Material: Diels-Alder Cycloaddition of Biomass-derived 2,5-Dimethylfuran and Ethylene over Sulfated and Phosphated Metal Oxides for Renewable p-Xylene

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Table of Contents

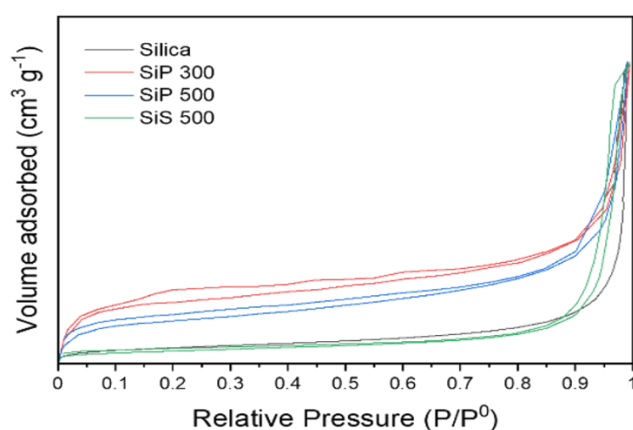
**Figure S1.** N<sub>2</sub> adsorption/desorption isotherms silica-based catalysts

**Figure S2.** N<sub>2</sub> adsorption/desorption isotherms titania-based catalysts

**Figure S3.** FT-IR spectra of sulfated silica catalysts

**Figure S4.** FT-IR spectra of sulfated titania catalysts

**Figure S5.** Conversion of DMF and selectivity of PX and HDO for the Diels-Alder reaction of DMF and ethylene over phosphated catalysts at calcined 773 K for 12 h. Reaction conditions; temperature = 523 K, reaction time = 6 ~ 12 h, C<sub>2</sub>H<sub>4</sub> pressure = 30 bar, DMF = 11.1 wt%, catalyst mass = 300 ± 5 mg.



**Figure S1.** N<sub>2</sub> adsorption/desorption isotherms silica-based catalysts.

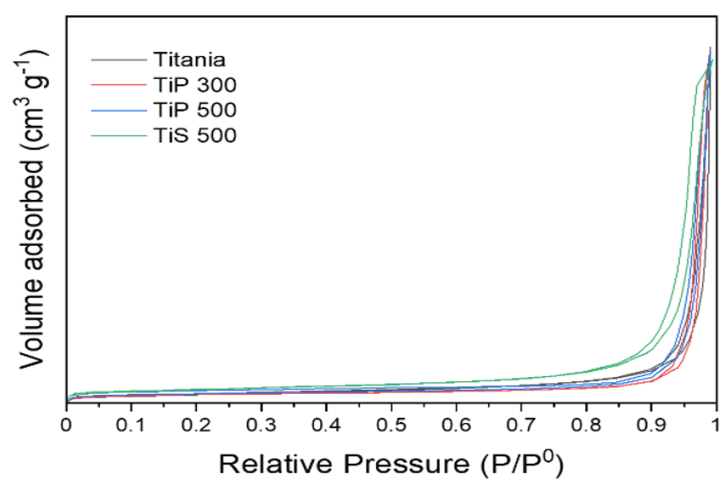


Figure S2. N<sub>2</sub> adsorption/desorption isotherms titania-based catalysts.

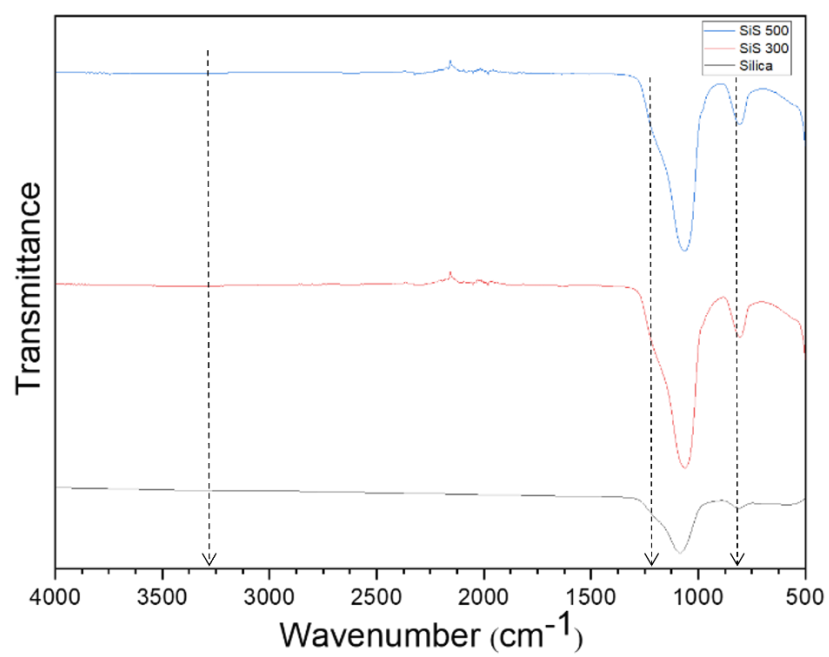
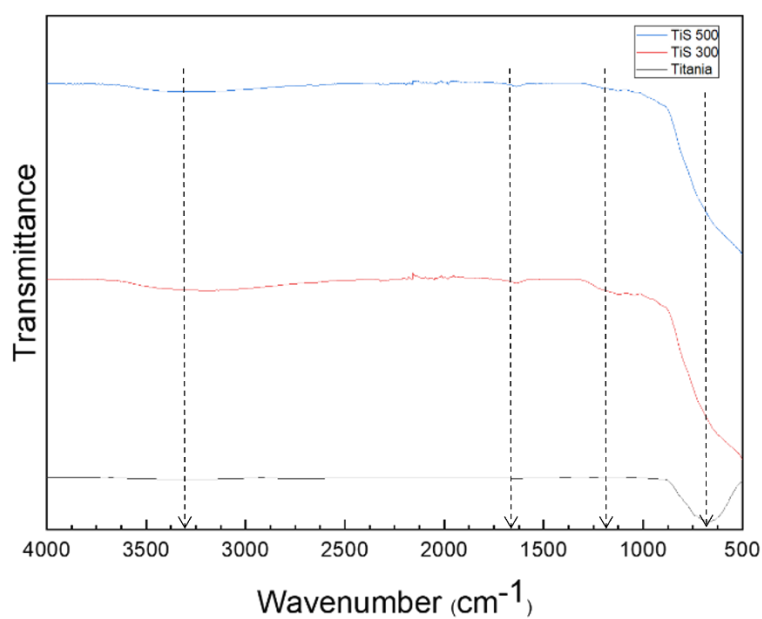
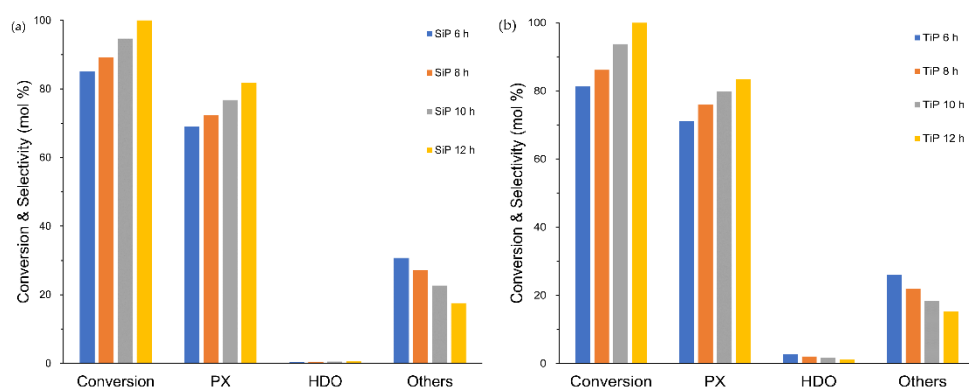


Figure S3. FT-IR spectra of sulfated silica catalysts.



**Figure S4.** FT-IR spectra of sulfated titania catalysts.



**Figure S5.** Conversion of DMF and selectivity of PX and HDO for the Diels-Alder reaction of DMF and ethylene over phosphated catalysts at calcined 773 K for 12 h. Reaction conditions; temperature = 523 K, reaction time = 6 ~ 12 h, C<sub>2</sub>H<sub>4</sub> pressure = 30 bar, DMF = 11.1 wt%, catalyst mass = 300 ± 5 mg.