

Supplementary Materials: Catalytic Dehydration of Ethanol over WO_x Nanoparticles Supported on MFI (Mobile Five) Zeolite Nanosheets

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In the supplementary materials, we provide extra figures related to the main text.

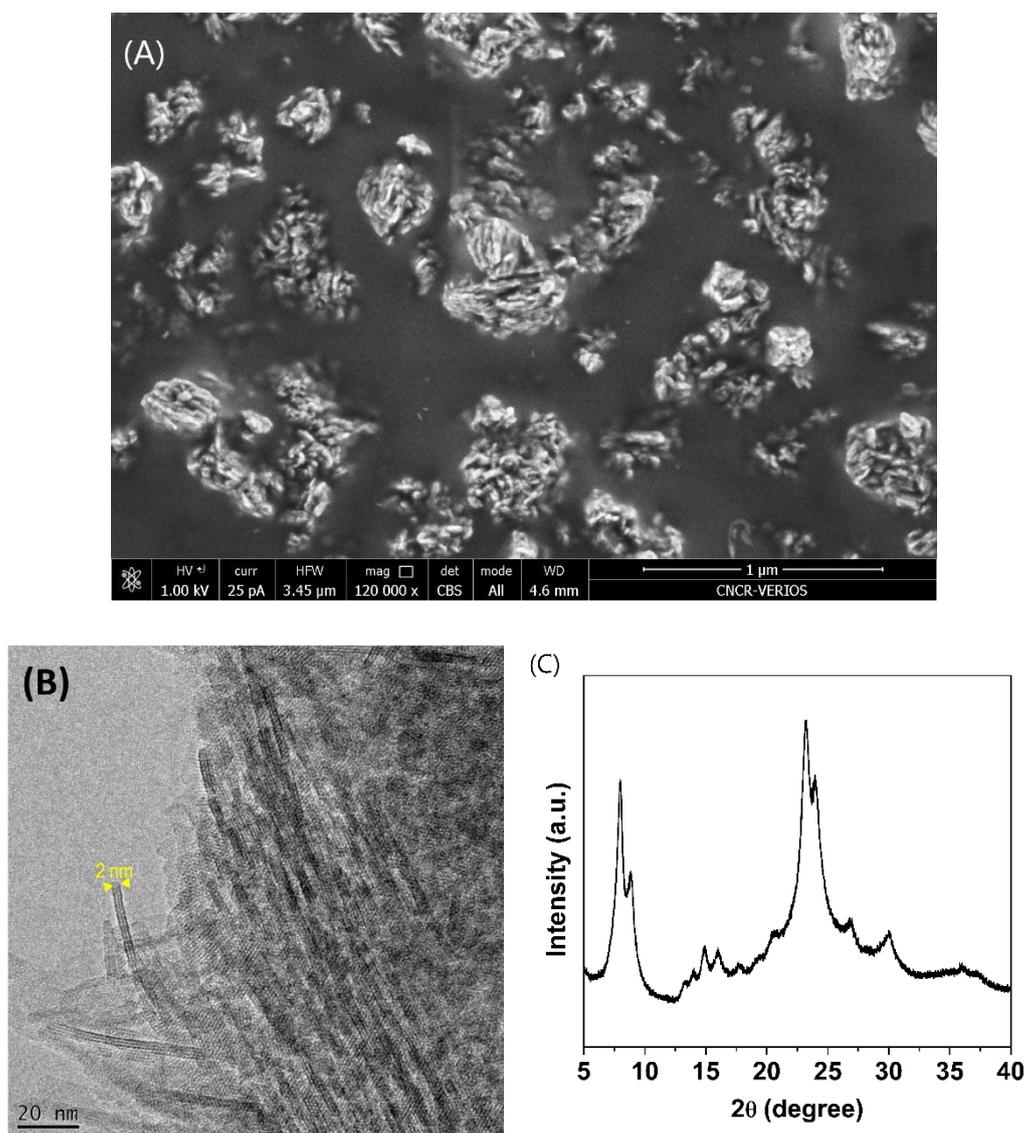


Figure S1. (a) The SEM, (b) TEM result and (c) XRD pattern of MFI nanosheet sample

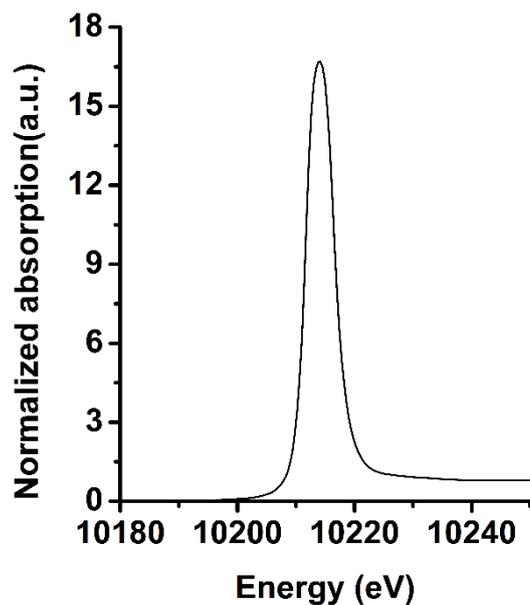


Figure S2. Typical W-L₃ XANES spectrum of W⁶⁺ in monoclinic structure of WO₃

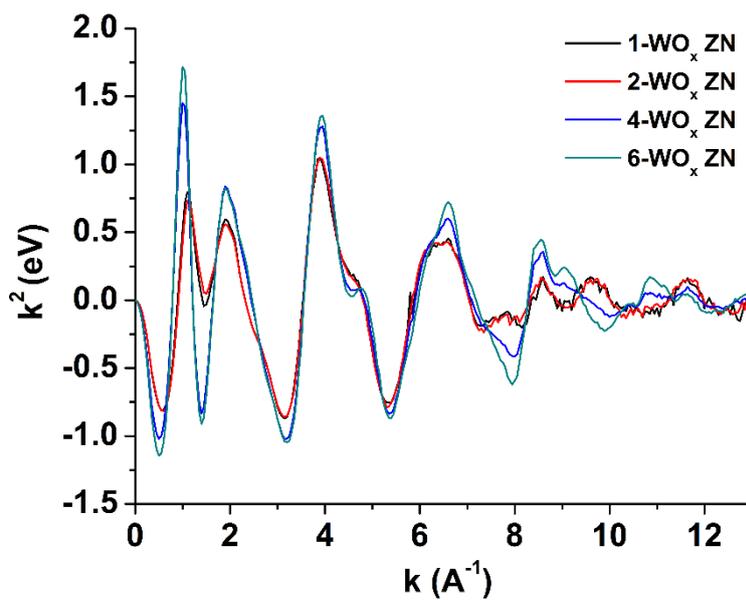


Figure S3. The oscillation wavelength of for 1-WO_x ZN, 2-WO_x ZN, 4-WO_x ZN, and 6-WO_x ZN samples

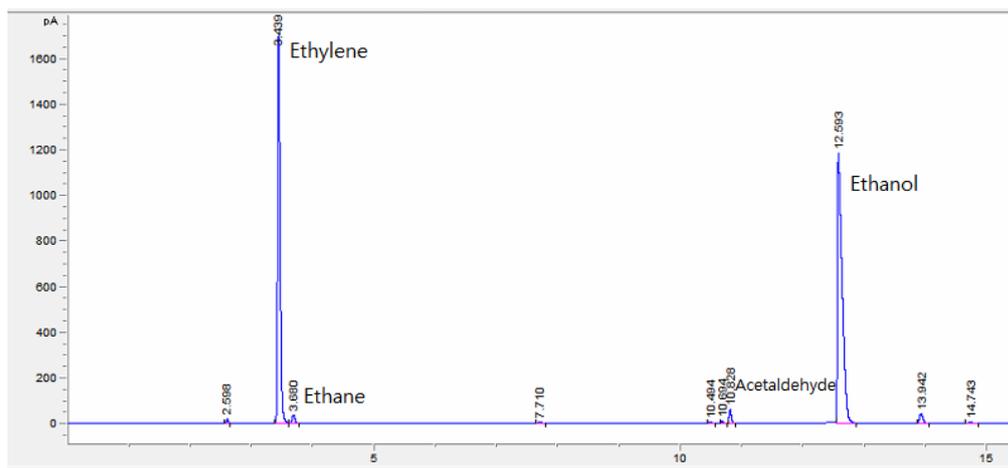


Figure S4. Typical gas chromatograms from the online analysis of these products. Ethylene, ethane, acetaldehyde, and diethyl ether revealed in this chromatogram.

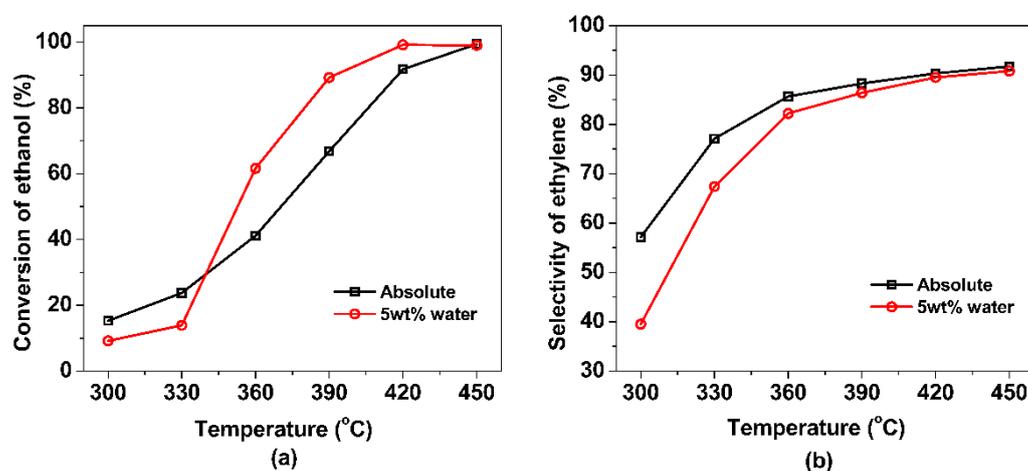


Figure S5. Ethanol conversion (a) and selectivity (b) as a function of reaction temperature over 4-WO_x ZN sample with ethanol contained 5wt% water. Reaction condition: 1.5h⁻¹ of WHSV, 100mg catalyst

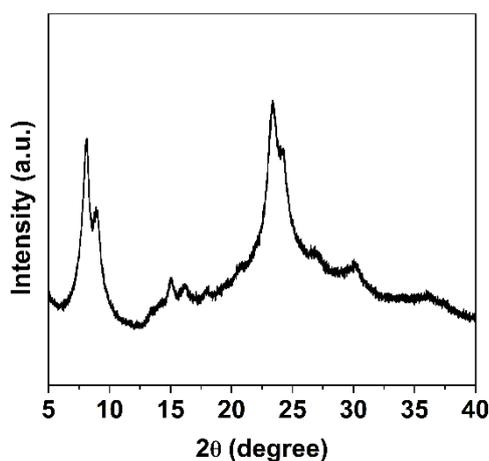


Figure S6. The XRD pattern for 1-WO_x ZN sample after catalytic reaction

Table S1. EtOH conversion and ethylene selectivity over commercial MFI zeolite (CBV 2314,

Zeolyst, Si/Al = 23)

Catalyst	EtOH Conversion	Ethylene Yield	Reaction Temperature	WHSV
^a CBV 2314	93.8%	41.5%	300	1.5h ⁻¹

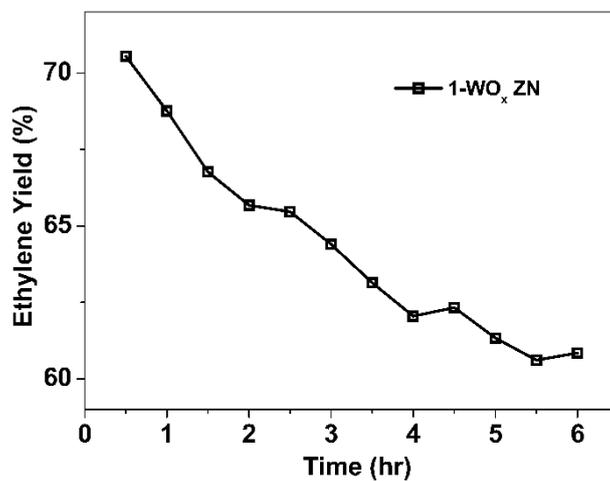


Figure S7. Ethanol yield changes as a function of reaction time for 1-WO_x ZN samples after regeneration. Reaction condition : WHSV : 1.5h⁻¹, reaction temperature 420 °C, and 100mg of catalyst