

Supplementary Information

Effect of Co-Doping on Cu/CaO Catalysts for Selective Furfural Hydrogenation into Furfuryl Alcohol

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Table S1. Summary of binding energies of Cu2*p*, Co2*p*, and Ca2*p* and kinetic energies of Cu LMM from the XPS spectra.

Catalyst	Cu2 <i>p</i> Binding energy (eV)			Co2 <i>p</i> Binding energy (eV)				Ca2 <i>p</i> Binding energy (eV)	Cu LMM Auger Kinetic energy (eV)		
	Cu ⁺ /Cu ⁰	Cu ²⁺	Sat.	Co ⁰	Co ³⁺	Co ²⁺	Sat.	Ca ²⁺	Cu ⁰	Cu ²⁺	Cu ⁺
Cu/Cao	932.5	934.5	943.0	-	-	-	-	347.0	918.7	917.6	916.5
	952.3	954.0	963.7					350.5			
Co _{1.40} Cu ₁ /CaO	932.4	934.3	942.8	779.2	780.5	781.4	785.2	347.3	918.7	917.6	916.5
	952.0	954.3	963.0	794.3	795.8	797.3	802.9	350.7			
Co/CaO	-	-	-	779.2	780.5	781.4	785.2	347.1	-	-	-
				794.3	795.8	797.3	802.9	350.6			

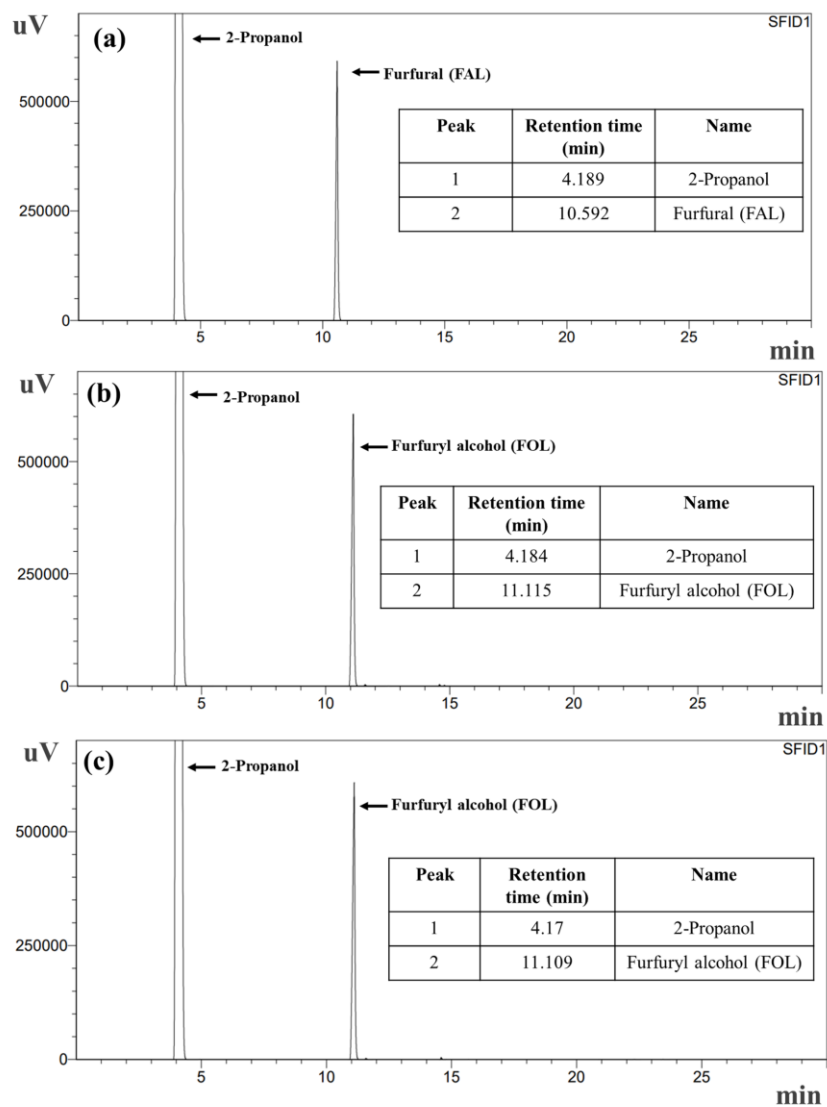


Figure S1. GC chromatograms of (a) FAL in 2-propanol before the reaction, and liquid product after reaction at 120°C, H_2 pressure of 20 bar, and reaction time of 2 h over (b) $\text{Co}_{1.40}\text{Cu}_1/\text{CaO}$ and (c) $\text{Co}_{1.94}\text{Cu}_1/\text{CaO}$ catalysts.

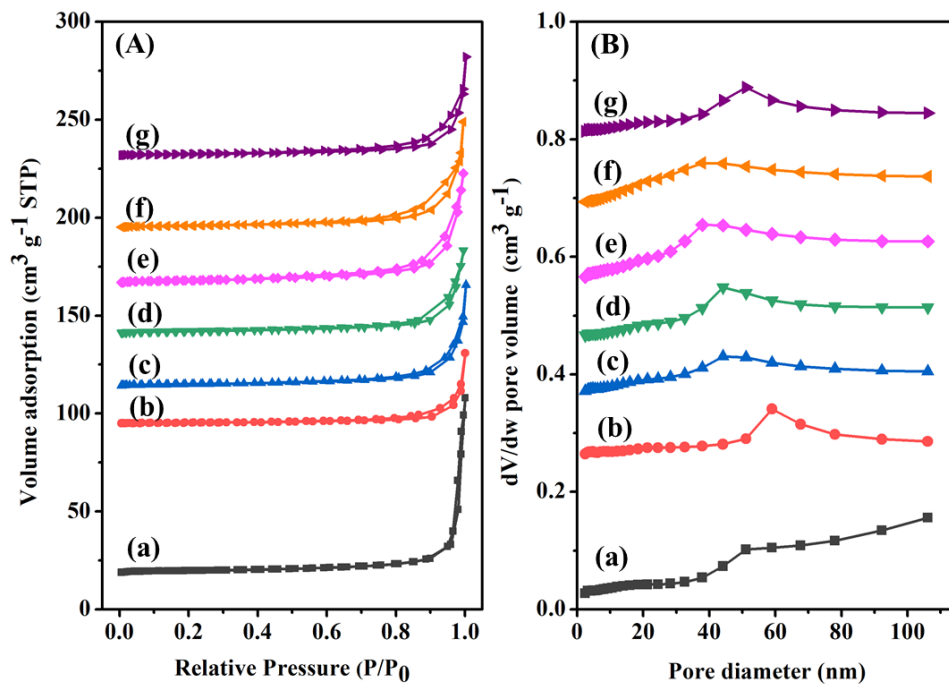


Figure S2. (A) N₂ adsorption and desorption isotherms, and (B) pore size distribution of (a) CaO, (b) Cu/CaO, (c) Co_{0.49}Cu₁/CaO, (d) Co_{0.96}Cu₁/CaO, (e) Co_{1.40}Cu₁/CaO, (f) Co_{1.94}Cu₁/CaO, and (g) Co/CaO catalysts.

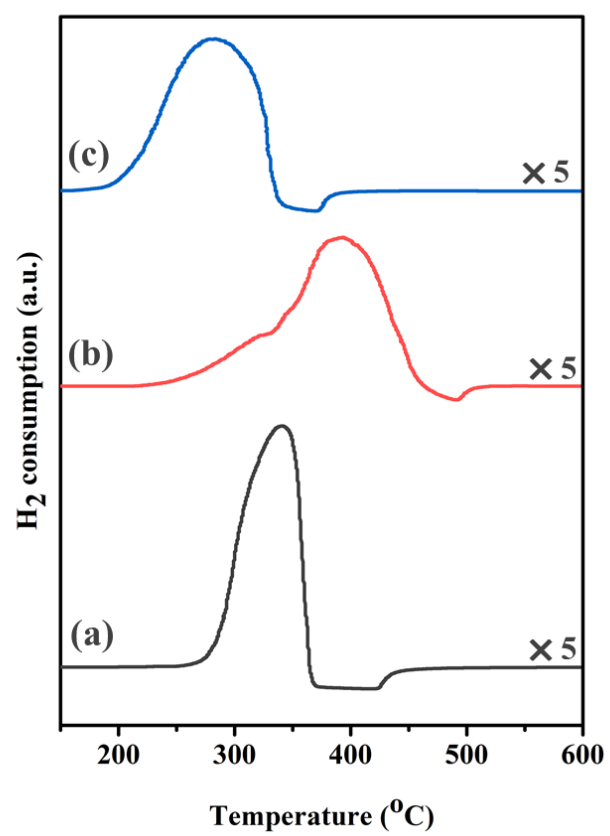


Figure S3. H₂-temperature programmed reduction profiles of bulk (a) Cu, (b) Co, and (c) CoCu samples.

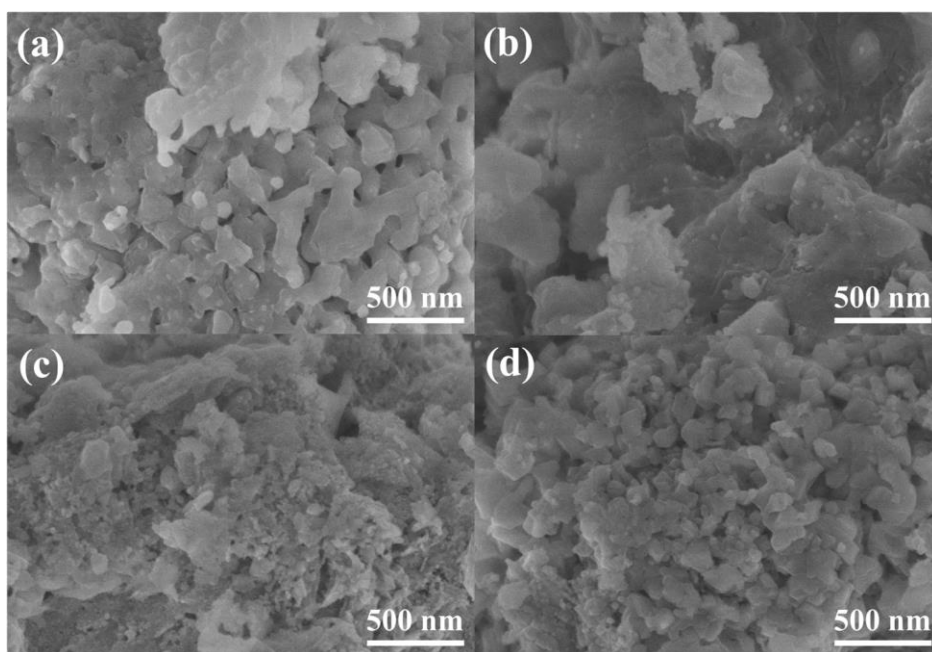


Figure S4. Representative FE-SEM images of the (a) CaO support, (b) Cu/CaO, (c) Co/CaO, and (d) Co_{1.40}Cu₁/CaO catalysts.

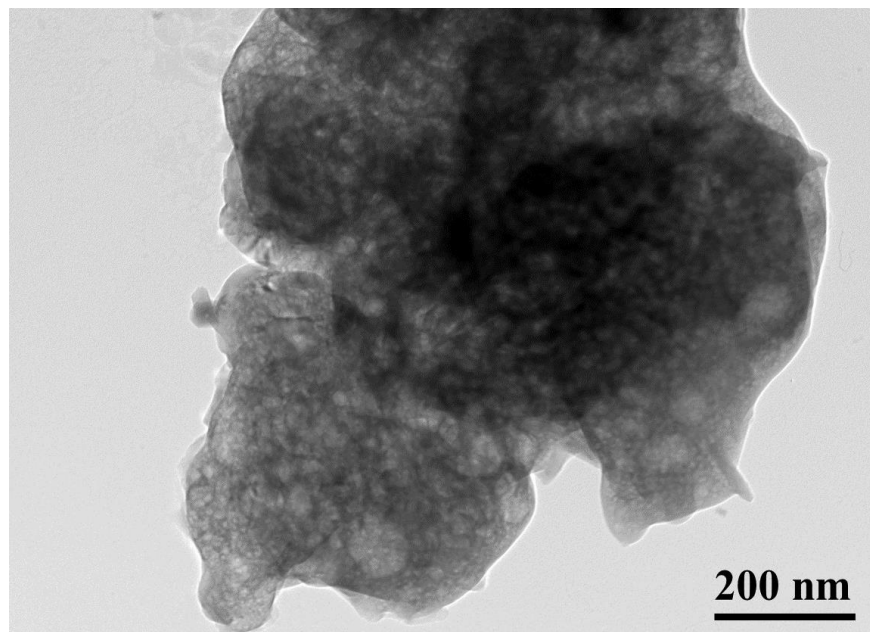


Figure S5. Typical TEM image of the bare CaO support.