

Supporting Information

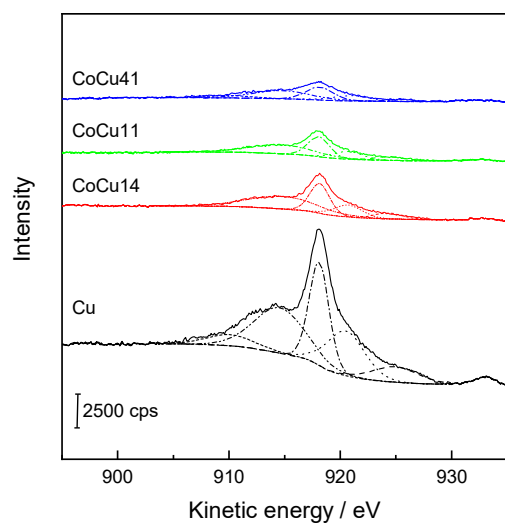


Figure S1. The Cu LMM XPS spectra of the Co-Cu oxide catalysts.

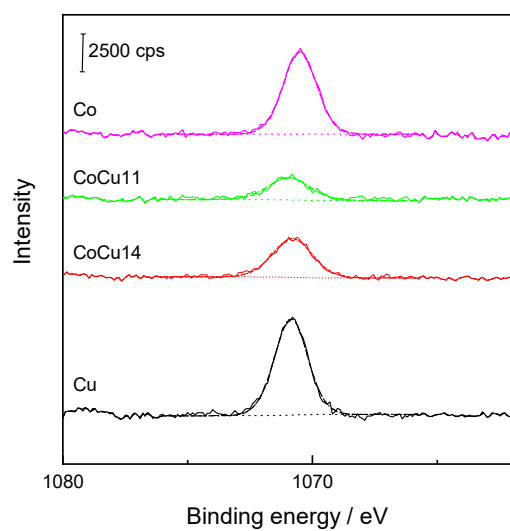


Figure S2. The Na 1s XPS spectra of the Co-Cu oxide catalysts.

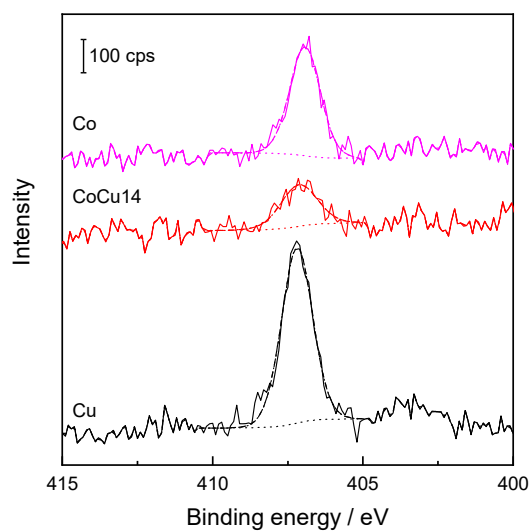


Figure S3. The N 1 s XPS spectra of the Co-Cu oxide catalysts.

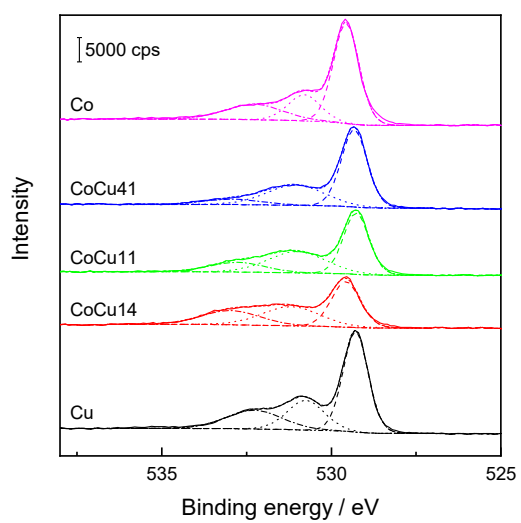


Figure S4. The O 1 s XPS spectra of the Co-Cu oxide catalysts.

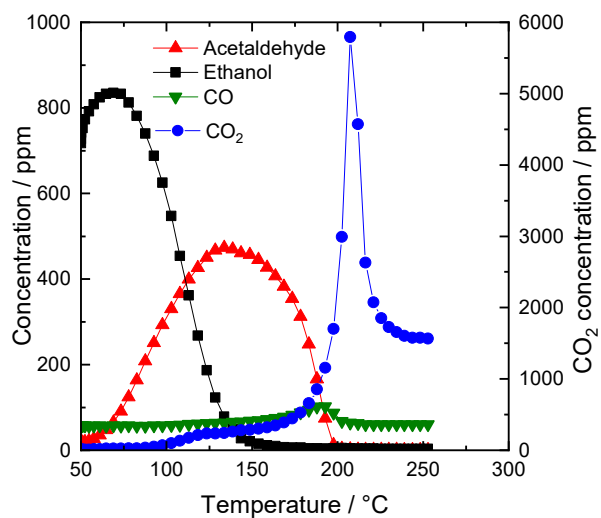


Figure S5. Concentration profiles of ethanol, acetaldehyde, carbon monoxide, and carbon dioxide during the light-off experiment over the Co catalyst.

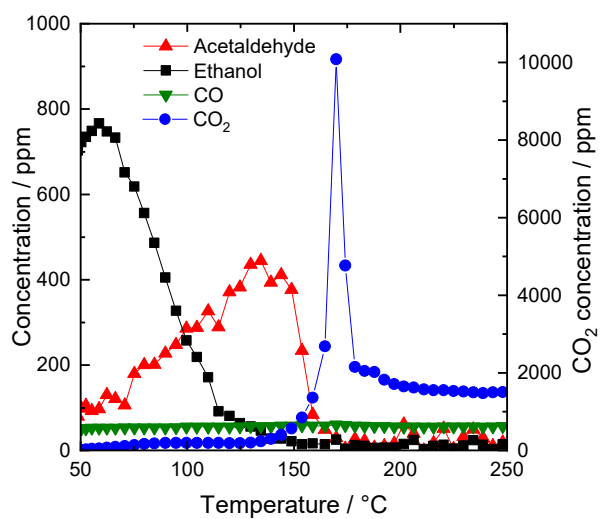


Figure S6. Concentration profiles of ethanol, acetaldehyde, carbon monoxide, and carbon dioxide during the light-off experiment over the CoCu11 catalyst.

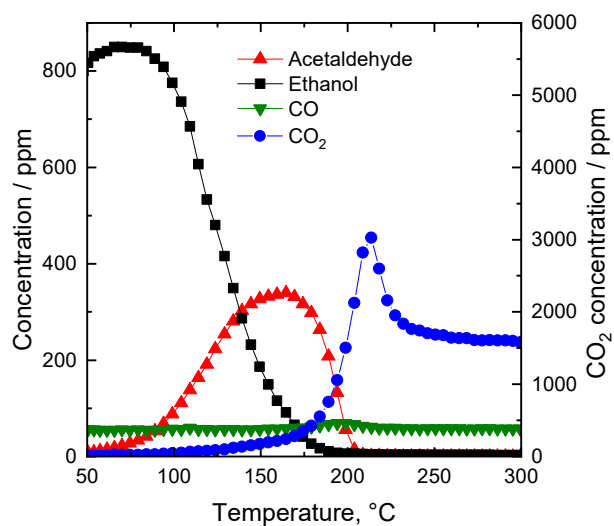


Figure S7. Concentration profiles of ethanol, acetaldehyde, carbon monoxide, and carbon dioxide during the light-off experiment over the CoCu14 catalyst.

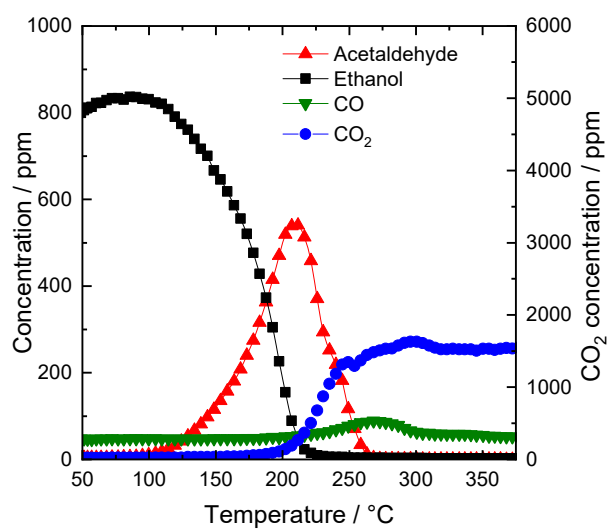


Figure S8. Concentration profiles of ethanol, acetaldehyde, carbon monoxide, and carbon dioxide during the light-off experiment over the Cu catalyst.