

Supplemental Information for:

Methane Dry Reforming Catalyst Prepared by the Co-deflagration of High-nitrogen Energetic Complexes

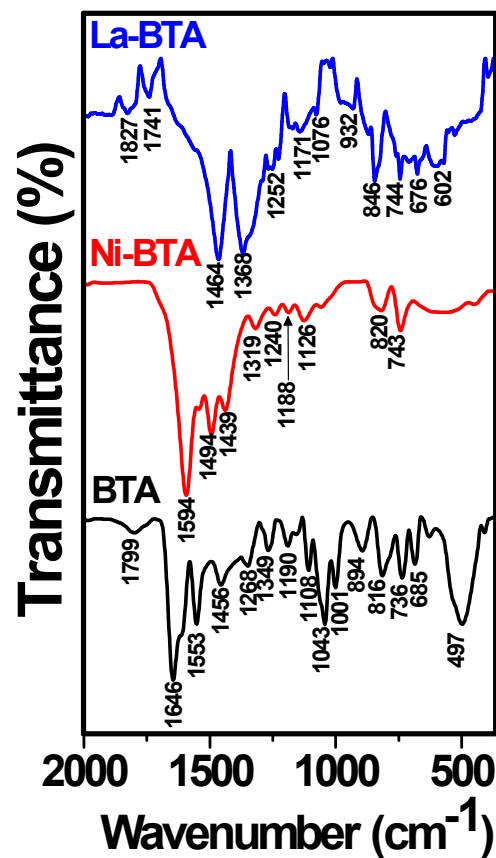


Figure S1: FTIR spectra of BTA, the Ni-BTA complex, and the novel La-BTA complex

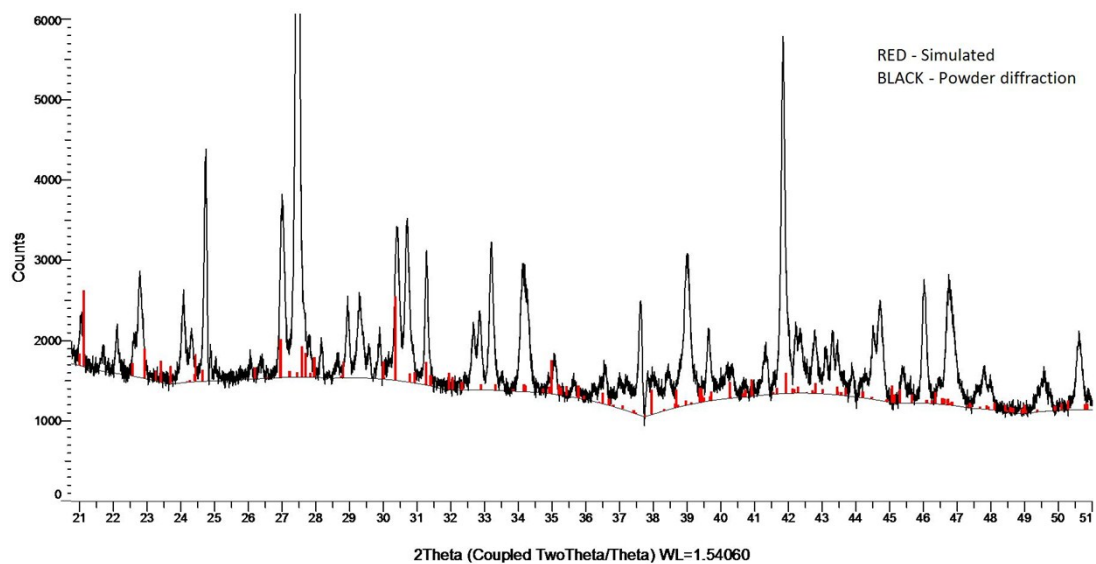


Figure S2: X-ray powder diffraction of large scale La-BTA synthesis compared to the simulated powder diffraction peak positions based on the single-crystal La-BTA data.

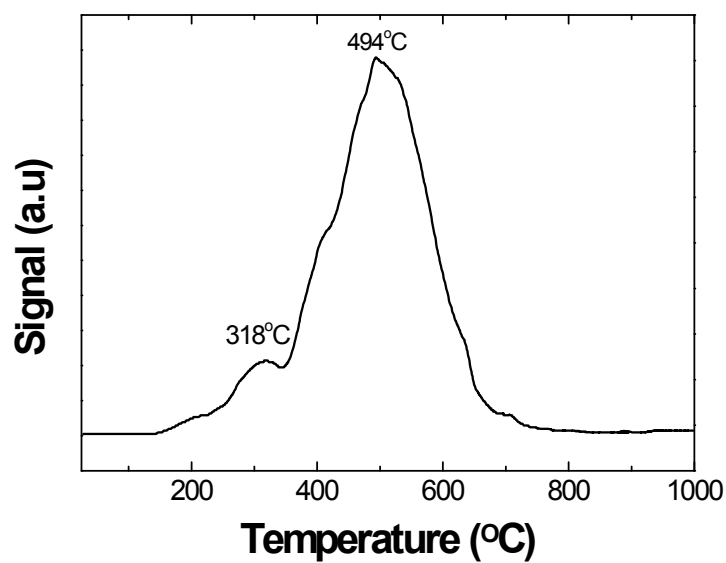


Figure S3: Temperature programmed reduction (TPR) of the clean NiO/La₂O₂CO₃ catalyst in 5% H₂ with a heating rate of 5°/min

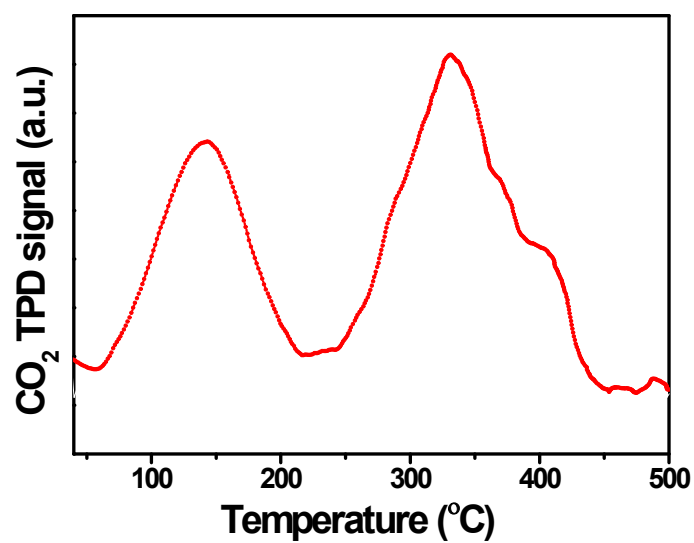


Figure S4: CO₂-TPD on catalyst where NiO was reduced to Ni. CO₂ adsorption occurred at room temperature. The temperature ramp during desorption was 5°/min

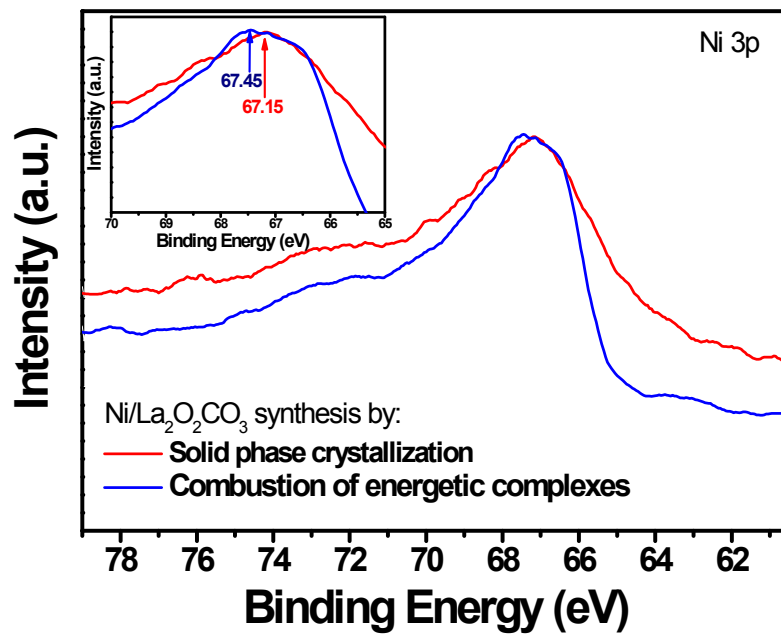


Figure S5: XPS of the Ni 3p electron for the Ni/La₂O₂CO₃ sample prepared by co-deflagration. For comparison, the same material is shown using solid phase crystallization.

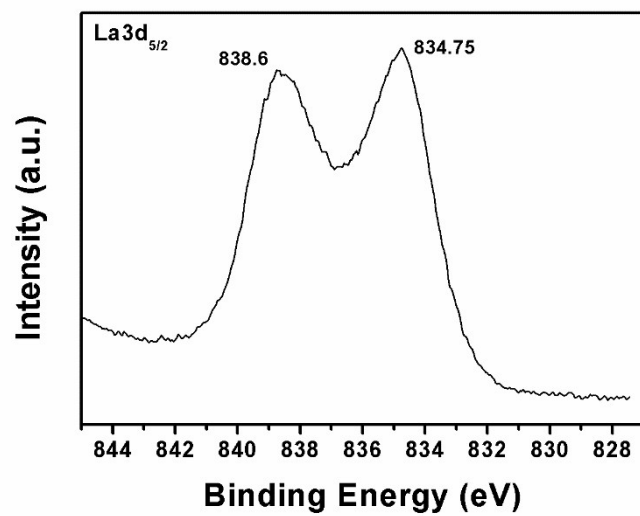


Figure S6: XPS of the La 3d_{5/2} doublet assigned to the lanthanum oxycarbonate support phase.

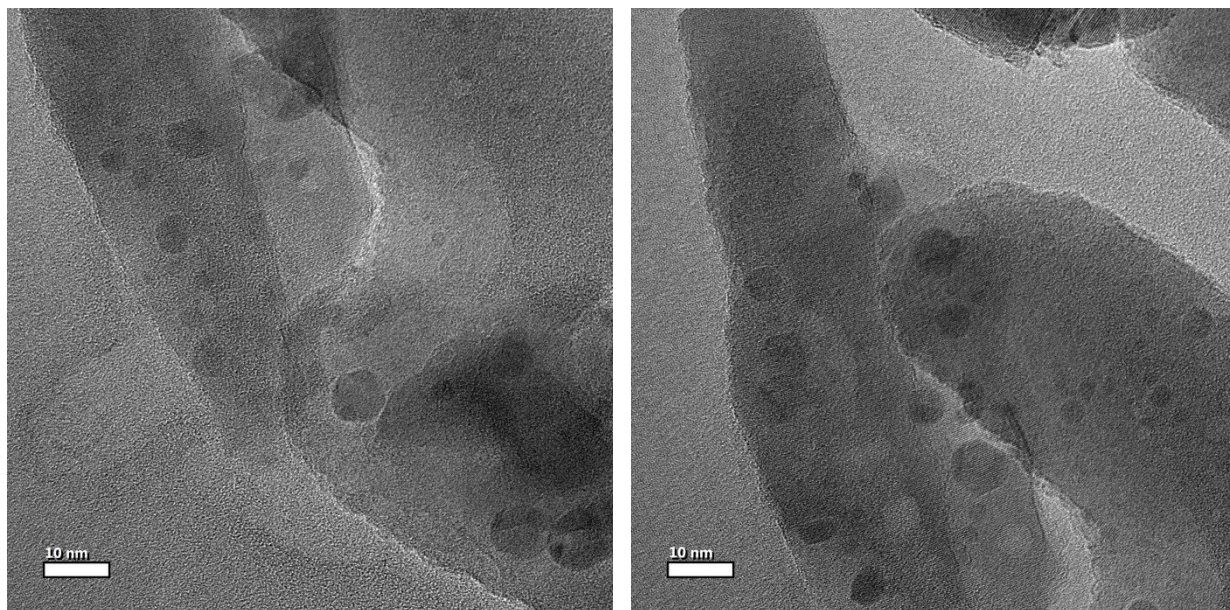


Figure S7: Additional TEM images of post-reaction catalyst complimenting the images from the main article.