

Supplementary Material

Green diesel production over nickel-alumina nanostructured catalysts promoted by copper

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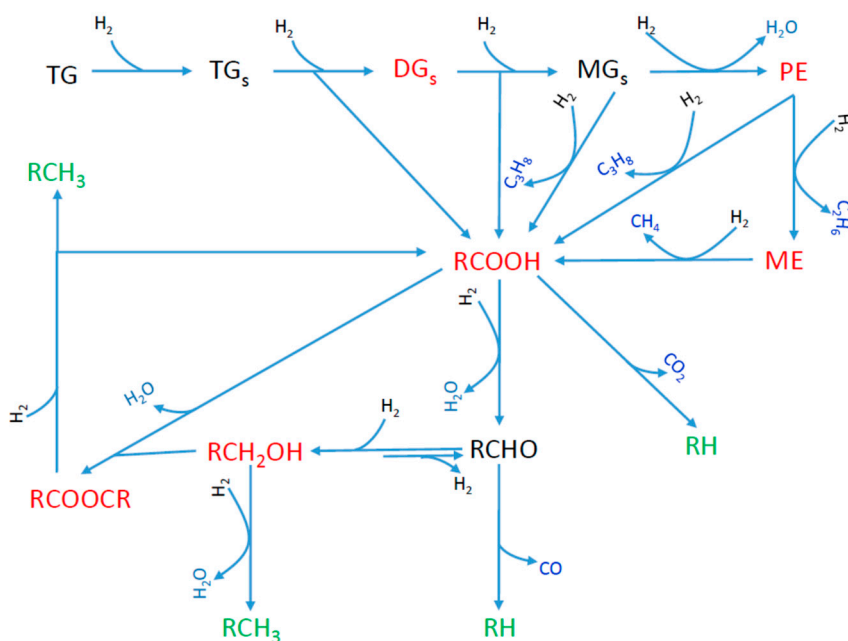


Figure S1. SDO reaction network. By TG, TG_s, DG_s, MG_s, PE, and ME we are symbolizing, respectively, the initial triglycerides, the saturated triglycerides, the saturated diglycerides, the saturated monoglycerides, the propyl-esters, and methyl-esters. The other molecules are represented by their chemical formulas.



Figure S2. Presentation of the setup used for co-precipitation. **(Left).** The setup includes a glass funnel containing the mixed aqueous solution of Ni^{2+} , Al^{3+} and Cu^{2+} nitrates and a double-walled glass vessel, with a cover, on a magnetic stirrer that initially contained 330mL of distilled water. During the experiment, the mixed solution from the glass funnel drips at a steady rate in the glass vessel. The setup also includes a glass electrode immersed in the glass vessel and a nozzle for adding NH_4OH solution into the vessel for keeping $\text{pH}=8$ during co-precipitation process. **(Right).** A pH-control system (Mettrom) equipped with glass/saturated calomel electrode for stabilizing the $\text{pH}=8$ at co-precipitation vessel during catalyst preparation introducing the necessary NH_4OH solution quantities.

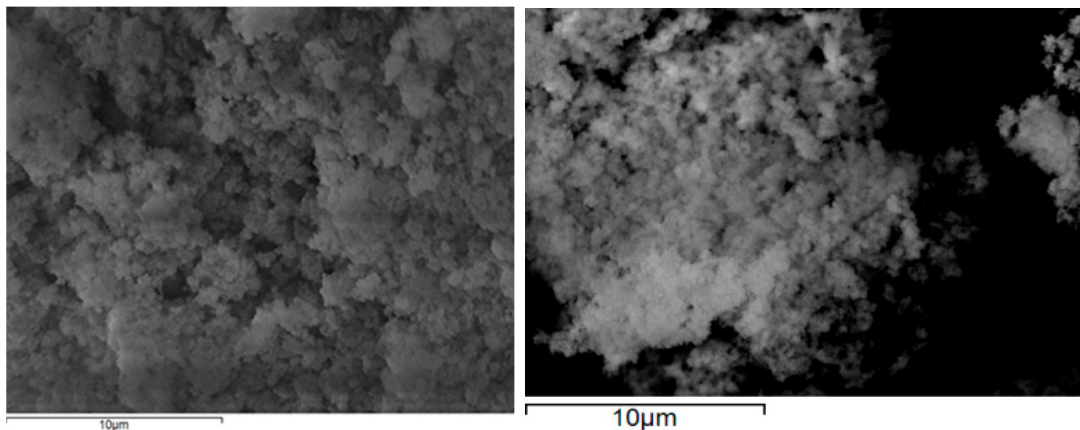


Figure S3. SEM images for the samples 60NiAl (left) and 58Ni2CuAl (right)

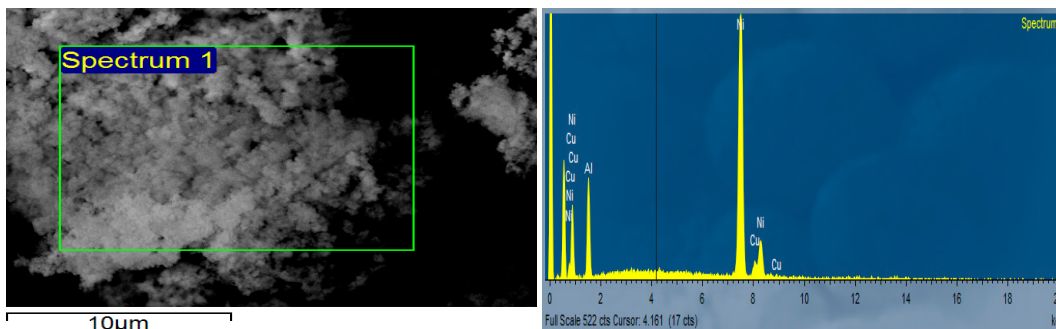


Figure S4. EDS spectrum (right) recorded for the 58Ni2CuAl catalyst in the Spectrum 1 region of the micrograph presented (left).

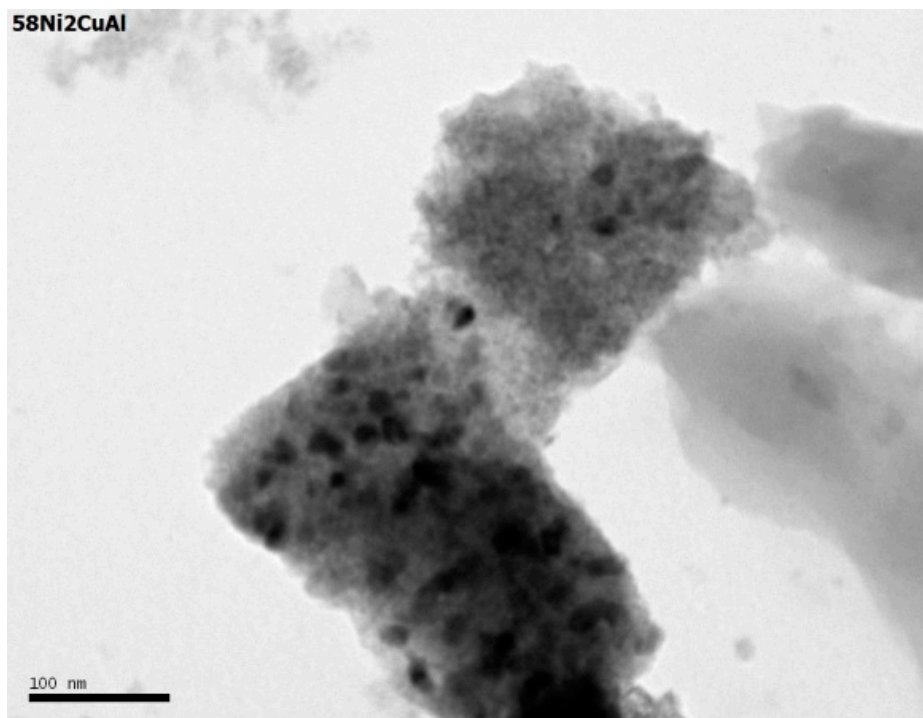


Figure S5. TEM image for the 58Ni2CuAl catalyst