catalysts

MDPI

Supplementary Materials

High yield to 1-propanol from crude glycerol using two reaction steps with Ni catalysts

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Supplementary Material: Synthesis of CS support

The gelling property of TEOS (SILBOND 40-AKZO Chemicals) was used in ethanol to include a phenol-formaldehyde liquid resin (RL 43003, ATANOR, Argentina) in its structure. With subsequent curing and pyrolisis in reducing atmosphere, this resin left a high amount of residual carbon. TEOS and RL 43003, with a 1:1 mass ratio, were mixed until obtaining an emulsion to which ethanol was gradually added. Afterwards, pregellification occurred at room temperature for 24 h, drying at 50 °C for another 24 h, complete polymerization by heating to 180 °C for 3 h, and calcination in a reducing atmosphere during 3 h at 1580 °C. Then, this material was treated with a solution at 10 wt.% HF for 30 min. This solid was washed with distilled water until obtaining a value of neutral pH, filtered and dried at 120ºC for 24 h. The presence of residual H_2F_6Si was eliminated by heating at 400°C during 1 h. The material thus obtained was denominated CS.

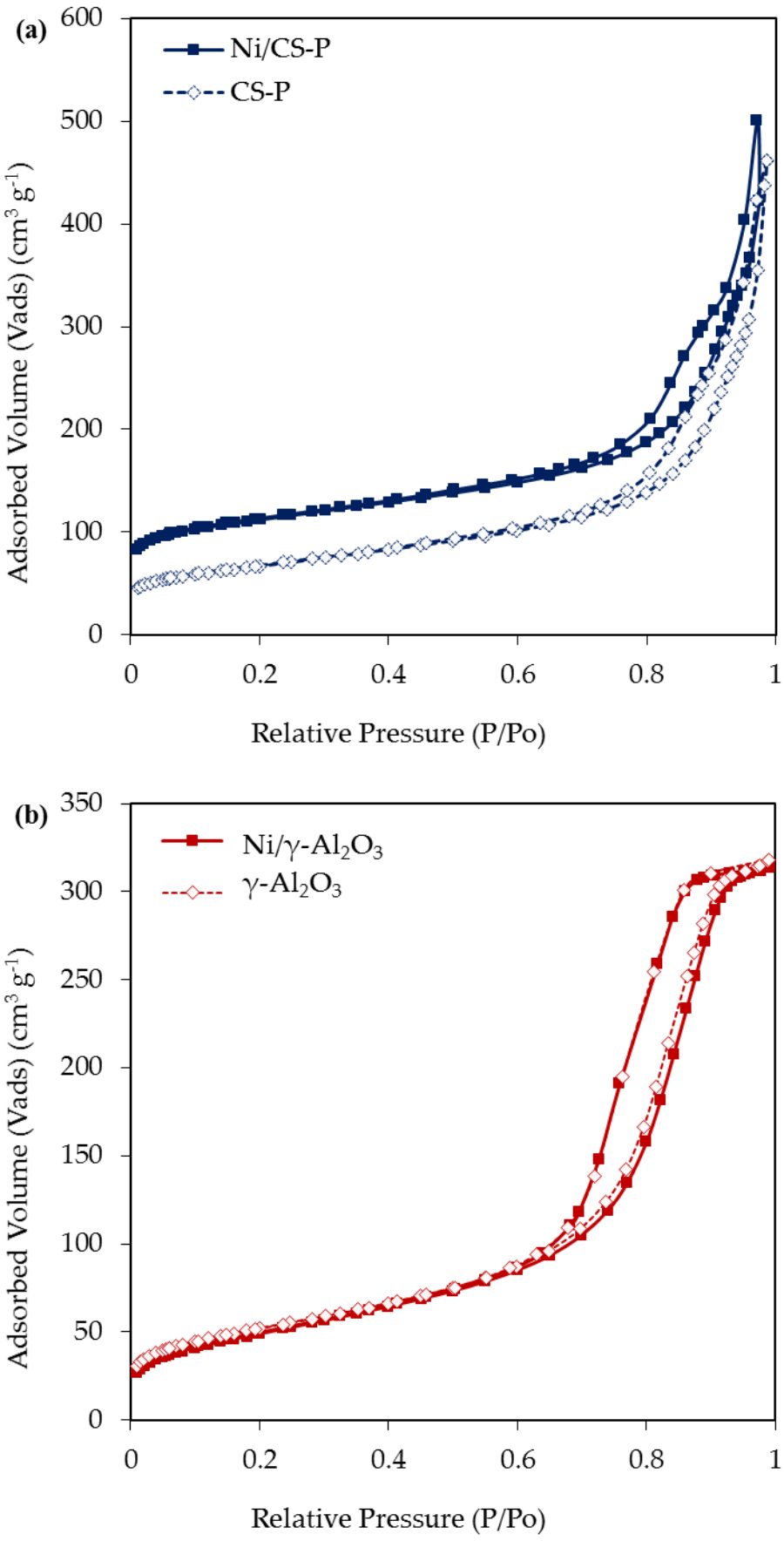

Figure S1. N_2 adsorption-desorption isotherms for (a) CS-P and Ni/CS-P (b) γ-Al_2O_3 and Ni/ γ-Al_2O_3.

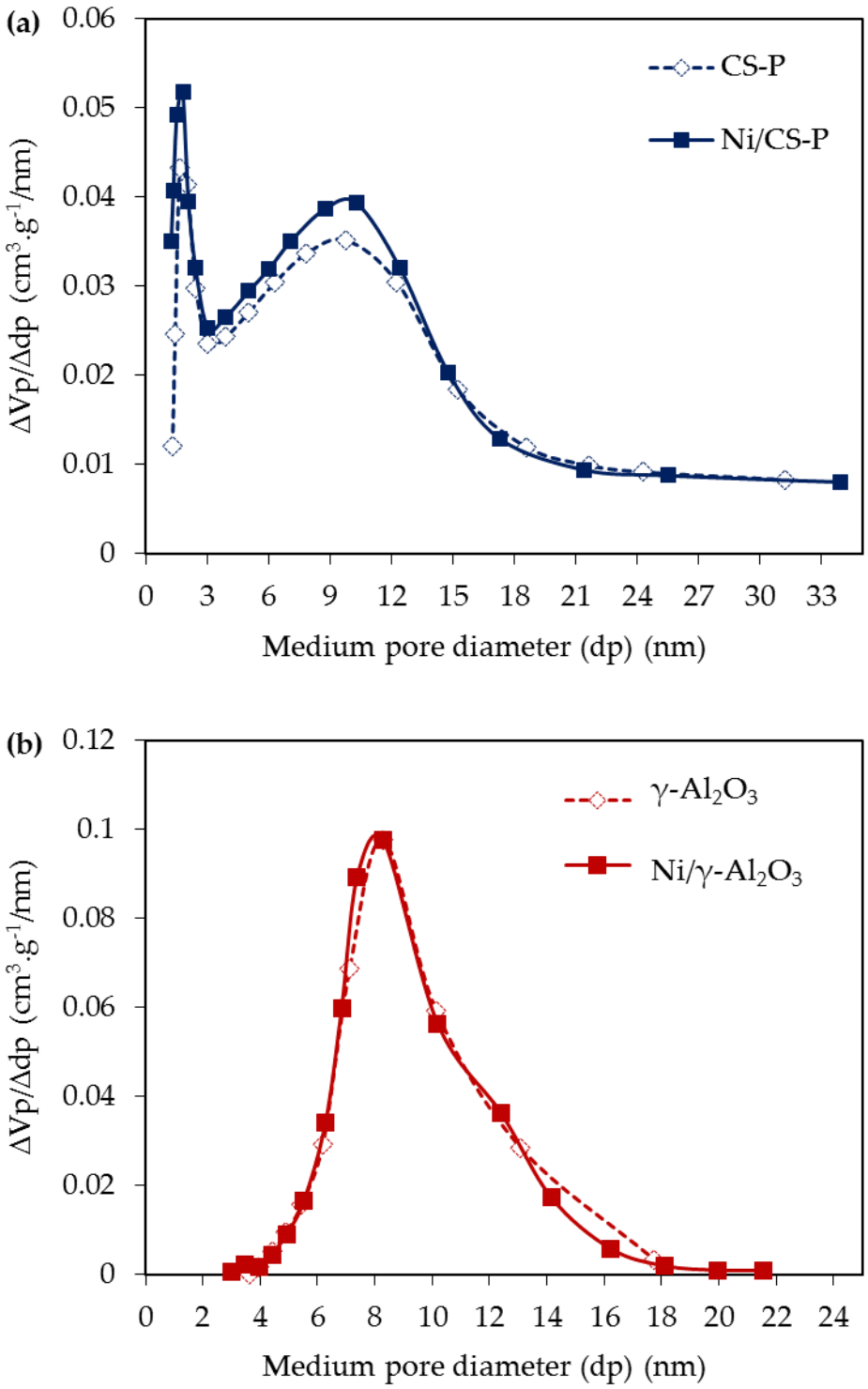

Figure S2. Pore size distribution according to the BJH model for **(a)** CS-P and Ni/CS-P calculated from the adsorption branch, assuming slit-shape pore geometry **(b)** Al_2O_3 and Ni/Al_2O_3 calculated from the desorption branch, assuming cylinder-shape pore geometry.