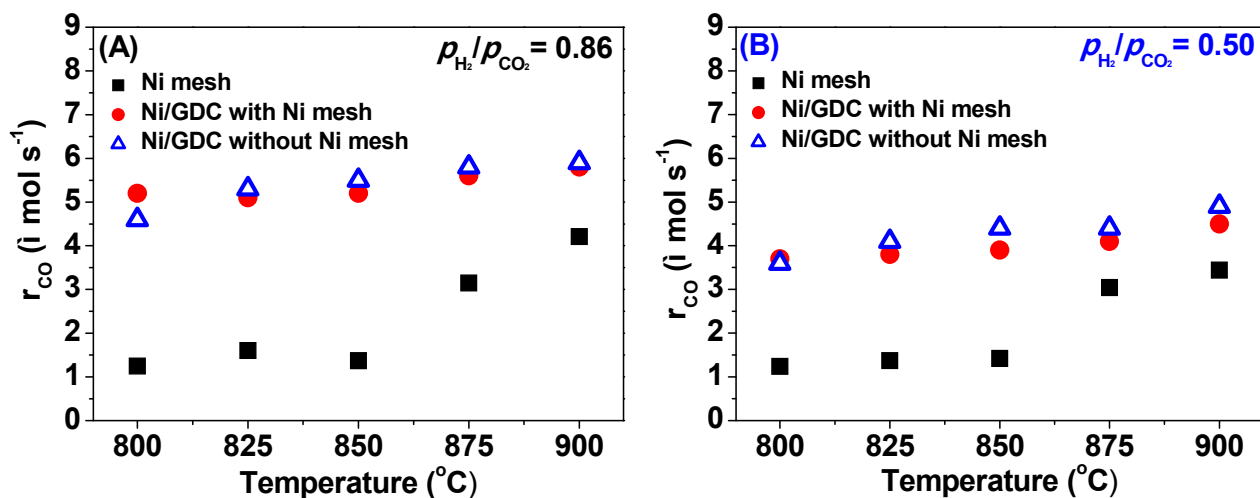


## Supplementary Material



**Figure S1.** Kinetic study of the R.W.G.S. reaction on the nickel mesh (■), Ni/GDC with Ni mesh (●) and Ni/GDC without Ni mesh (△), in the range of 800-900  $^{\circ}\text{C}$ , under two different mixtures: (A) 24.5%  $\text{H}_2\text{O}$  - 24.5%  $\text{CO}_2$  - 21%  $\text{H}_2$  ( $P_{H_2}/P_{CO_2} = 0.86$ ) and (B) 28%  $\text{H}_2\text{O}$  - 28%  $\text{CO}_2$  - 14%  $\text{H}_2$  ( $P_{H_2}/P_{CO_2} = 0.50$ ). Dilution of He: 30 vol.% and  $F_{\text{total}} = 140 \text{ cm}^3/\text{min}$  (STP conditions: 0  $^{\circ}\text{C}$ , 1 atm) in all cases. The loading of Ni/GDC is  $11 \text{ mg}/\text{cm}^2$ .