

High-Temperature Water Gas Shift Reaction Over  $\text{CuFe}_2\text{O}_4$ -Mesoporous  $\text{Al}_2\text{O}_3$  Composite Using Simulated Waste-Derived Synthesis Gas

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Simulated waste-derived synthesis gas has been tested for hydrogen production through water gas shift reaction in the temperature range of 350 ~ 550 °C over a  $\text{CuFe}_2\text{O}_4$ -mesoporous  $\text{Al}_2\text{O}_3$  nano-composite. We demonstrate successfully, the synthesis of  $\text{CuFe}_2\text{O}_4$  integrated with mesoporous alumina in a honeycomb-like nano-architecture, and its efficacy as a high temperature water gas shift reaction catalyst by exhibiting a stable CO conversion for 10 days under realistic condition using the simulated waste-derived synthesis gas.