

**High-Temperature Water Gas Shift Reaction Over  $\text{Cu}_x\text{Fe}_{(3-x)}\text{O}_4$ -Mesoporous  $\text{Al}_2\text{O}_3$  Catalysts**

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To develop high-temperature water gas shift reaction catalyst for waste gasification system, copper ferrite catalysts supported on mesoporous alumina ( $\text{Cu}_x\text{Fe}_{(3-x)}\text{O}_4$ -MA) have been applied for the target reaction. The Cu/Fe mole ratio was systematically varied to optimize  $\text{Cu}_x\text{Fe}_{(3-x)}\text{O}_4$ -MA catalysts ( $x = 0.5, 1.0, 1.5, 2.0, \text{ or } 2.5$ ).  $\text{Cu}_{1.5}\text{Fe}_{1.5}\text{O}_4$ -MA showed the highest CO conversion ( $X_{\text{CO}} = 84\%$ ) among the catalysts tested in this study. The improved performance of the catalyst can be attributed to the enhanced reducibility, improved dispersion of CuO over the catalyst surface and the shift of the  $\text{Fe}_2\text{O}_3$  to  $\text{Fe}_3\text{O}_4$  reduction peak to a lower temperature.