

**Studies on the water gas shift reaction over
ceria-supported precious metals**

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Water Gas Shift (WGS) reaction is one of the key catalytic stages in a fuel processor and hydrogen station. The commercial low temperature shift (LTS) catalyst (Cu-Zn/Al₂O₃), though highly active at low temperature, was unsuitable for commercialized applications because of the rapid deactivation tendency under severe conditions. Also, the Cu-Zn/Al₂O₃ catalyst can not be used at temperatures above about 250°C, which further limits their utility. The WGS reaction over ceria based catalysts was investigated to develop an alternate commercial Cu-Zn/Al₂O₃ catalyst. The catalyst was prepared by an impregnation method, and were characterized by N₂ physisorption, CO chemisorption and XRD. It was found that Cu-Mo/CeO₂ catalyst showed higher activity and stability than the commercial LTS catalyst for WGS reaction.