Water Gas Shift Reaction over $Cu-Mo/Ce_xZr_{1-x}O_2$ Catalysts for Fuel Processor and Hydrogen Station Applications

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mixed oxides (CexZr1-xO2 (x = 0.3-0.9)) were prepared and used as supports of Cu-Mo bimetallic catalysts. The catalysts prepared by co-precipitation and impregnation methods were characterized by N2 physisorption, CO chemisorption, TPR, XRD and TEM techniques. Water gas shift reaction (WGS) over Cu-Mo/CexZr1-xO2 catalysts was investigated to develop an alternative to commercial Cu-ZnO/Al2O3(LTS) catalyst. It was found that 12wt% Cu-2wt%Mo/Ce0.5Zr0.5O2 catalyst showed higher activity and thermal stability than the commercial LTS catalyst for WGS reaction during the thermal cycling reaction under the tested conditions.