

Comparative study on Cu-Ce_{0.8}Zr_{0.2}O₂ and Cu-Ce_{0.2}Zr_{0.8}O₂ catalysts for the low temperature water gas shift reaction

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Low temperature water gas shift reaction (LT-WGS) has been carried out at a gas hourly space velocity of 72,152 h⁻¹ over Ce_(1-x)Zr_(x)O₂ supported Cu catalysts prepared by a co-precipitated method. The CeO₂/ZrO₂ ratio was systematically varied to understand beneficial effect of cubic/tetragonal phases of Ce_(1-x)Zr_(x)O₂. 20wt% Cu loaded on cubic phase Ce_{0.8}Zr_{0.2}O₂ exhibited higher CO conversion than 20wt% Cu loaded on tetragonal phase Ce_{0.2}Zr_{0.8}O₂. The effect of cubic/tetragonal phases of Ce_(1-x)Zr_(x)O₂ has been characterized by BET, XRD, N₂O-chemisorption, TPR and the characterization results have been related to the activity results in LT-WGS.