

Synthesis Gas Production from Combined H₂O and CO₂ Reforming of CH₄ for Gas to Liquid (GTL) over Ni-CeO₂-ZrO₂ Catalysts

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Ni-CeO₂-ZrO₂ catalysts have been prepared by the co-precipitation method and applied for combined H₂O and CO₂ reforming of CH₄ (CSCRM) to produce synthesis gas with a H₂/CO ratio of 2, which is suitable to gas to liquid (GTL) process. 15%Ni-Ce_{0.8}-Zr_{0.2}O₂ catalyst exhibits the highest activity as well as stability among the catalysts tested in this study. The high activity and stability of 15%Ni-Ce_{0.8}-Zr_{0.2}O₂ catalyst is mainly ascribed to high oxygen storage capacity, which enables to supply active oxygen species during the reaction, resulting in preventing carbon formation.