

Preparation of Copper Oxide/Al-SBA-15 by One-pot Synthesis for DME Steam Reforming

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DME steam reforming for H₂ production generally proceeds in two steps. The first step is the hydrolysis of DME to methanol, followed by methanol steam-reforming reaction to hydrogen and carbon oxides. Acid catalysts are effective for hydrolyzing DME into methanol and copper oxides catalyze the methanol steam reforming. From this point of view, hybrid catalysts containing the copper species and acid catalysts in the physically mixed state have been extensively researched. In this work, copper oxide/Al-SBA-15, complex of copper oxide and Al-SBA-15 was successfully prepared by one-pot synthesis. The prepared complex has high surface area and acidity originated from Al-incorporated mesoporous silica. The copper oxide/Al-SBA-15 was tested to evaluate the catalytic activity for DME steam reforming.