

The effect of solid acid amount, water content and reaction temperature on DME steam reforming

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DME SR seems to proceed via a successive two step plausible mechanism: hydrolysis of DME to methanol, followed by methanol SR to produce H_2 and CO_2 . Hydrolysis of DME to methanol, rate-determining step, is accelerated by the presence of acidic sites, and the methanol conversion to hydrogen over copper based catalysts is relatively fast. In this work, the composites of mesoporous solid acid catalysts (Al-SBA-15) for hydrolysis of DME and copper-based catalysts ($Cu/Zn/Al_2O_3$) for methanol SR were used as hybrid catalysts for the steam reforming of DME. The effect of solid acid amount, water content and reaction temperature was analyzed on the basis of catalytic activity measured.