

## Bimetallic platinum/iridium modified mesoporous catalysts applied in the hydrogenation of HMF

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The catalytic transformation of 5-hydroxymethylfurfural (HMF) to produce 2,5-dimethylfuran (DMF) was studied over bimetallic (PtIr) and monometallic (Pt) catalysts supported on CMK-3 and SBA-15 mesoporous materials. The optimum temperature and pressure for the maximum production of DMF were 120° and 15 atm. Increases in temperature and pressure decreased the selectivity to DMF. The catalysts were broadly characterized by XRD, N<sub>2</sub>-isotherms, XPS, TPR, TEM and NH<sub>3</sub>-TPD. It was found that the metal particles were well reduced and highly dispersed on the surface of the support of large surface area and narrow pore distribution. The PtIr alloy species active sites were very active and selective towards the formation of the desired DMF. PtIr-CMK-3 showed an excellent activity, selectivity and stability to be applied in this process.

**Keywords:** mesoporous carbon, SBA-15, bimetallic

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