

Production of hydrogen through aqueous phase reforming of ethylene glycol over ordered mesoporous carbon supported Pt-Mn catalysts

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Catalytic activities of ordered mesoporous carbon CMK-3 supported PtMn catalysts for hydrogen production by aqueous phase reforming (APR) of 10 wt% ethylene glycol (EG) solution was studied. The catalysts were characterized by X-ray powder diffraction (XRD) pattern, transmission electron microscopy (TEM), hydrogen temperature programmed reduction (H₂-TPR), and N₂ sorption techniques. The results show that the addition of Mn to Pt was significantly more active such as high carbon conversion, hydrogen yield and hydrogen producing rate per gram of catalyst and low alkanes selectivity than monometallic Pt catalyst. In case of supports, among various catalyst supports tested in this study, the ordered mesoporous carbon (OMC) supported Pt-Mn bimetallic catalyst exhibited the best catalytic activity.