

The effect of Al_2O_3 on thin film type Cu/ZnO nanowire catalysts for methanol steam reforming process

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Cu/ZnO-based bulk catalyst from steam reforming of methanol has been used for hydrogen production under relatively low temperature. For the effective platform for portable power system, it will be desirable that thin film type catalysts are developed due to low temperature gradient and pressure drop than the conventional bulk catalyst in micro reforming system. To address this issue, we demonstrated thin film type Cu- Al_2O_3 nanoparticle/ZnO nanowire catalysts prepared by sequential process of wet-solution methods and atomic layer deposition. The catalysts performances were evaluated systematically with the variation of the morphology of Cu- Al_2O_3 nanoparticle on the surface of ZnO nanowire. The critical role of Al_2O_3 in this type catalysts will be presented in terms of catalysts performance and long-time stability.