

**Enhancement of liquid organic hydrogen carrier (LOHC) dehydrogenation activity over Pt/KIT-6 catalyst by well-developed pore structure of ordered mesoporous silica (OMS)**

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Hydrogen production from liquid organic hydrogen carriers by Pt-based porous dehydrogenation catalysts. Liquid organic hydrogen carriers (LOHCs) have attracted a great deal of attention due to their ability to store and release hydrogen by a reversible hydrogenation and dehydrogenation cycle. Generally, catalytic dehydrogenation of LOHCs is carried out over noble metal catalysts, represented in Pt-based catalysts. Pt-based catalysts are widely used in a variety of dehydrogenation reactions because of the excellent activity of platinum for C-H bond scission. We tried to synthesize Pt-based dehydrogenation catalysts supported on various porous oxides adopting a simple impregnation method. Especially, Pt-based LOHC dehydrogenation catalysts supported on ordered mesoporous materials (OMMs) were investigated thoroughly with methylcyclohexane (MCH) as a reactant and their physicochemical characteristics were studied by using several analytical techniques like TEM, TPR, TPD, N<sub>2</sub>-physisorption, and so on.