

K-CHA type의 zeolite 합성 및 메탄올
thermal cracking에 의한 수소생산

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Production of hydrogen is significant industrial importance, and increasing interest to take advantage of environmentally friendly energy. Particularly, methanol as a hydrogen carrier has been attractively received because its advantages compared to hydrocarbons and ethanol, such as high hydrogen-to-carbon ratio, molecular simplicity, no C-C bond, relatively low reforming temperatures due to its low energy chemical bond, and low sulfur content. Hydrogen production by catalytic methanol thermal cracking has been successfully demonstrated and a large variety of catalysts have been reported. The majority of these have focused on the transition and noble metals-based catalysts. However, there is a serious problem in the cost. Researches used only main metals as a catalyst, the cheaper and harmless to bio-body, are very seldom for the methanol to hydrocarbon reaction. In present study, we have tried to use main metals, such as K, Al, and Si, to synthesize a catalyst with chabasite structure (CHA), and to apply the CHA typed catalyst into methanol to hydrogen reaction. It was concluded that the CHA structured $K_wAl_xSi_yO_z$ catalysts gave the better influence to the methanol conversion to hydrogen.