

### 헥사알루미네이트에 담지된 Ni 촉매를 이용한 메탄의 이산화탄소 개질 반응

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The CO<sub>2</sub> reforming of methane is a very effective route for the conversion of two of the cheapest carbon containing molecules to (CO + H<sub>2</sub>) mixture of great value. So far, precious metals, such as Pd, Pt and Ir, have showed high activity for the reaction, however the high price is an inhibiting factor for the industrial application. Supported Ni catalysts have also been reported to be effective for this reaction, but they suffer from serious deactivation due to carbon deposition, sintering of the particles and phase transformation. We used hexaaluminate, which has been known as the excellent catalyst for the high-temperature catalytic combustion, as a support for Ni. The catalysts of various Ni loadings were prepared by using incipient-wetness method. The catalytic activity for the CO<sub>2</sub> reforming of methane were examined and compared to that of Ni/Al<sub>2</sub>O<sub>3</sub>. The reaction products were on-line analyzed using a GC. The crystalline structure of the catalyst before and after the reaction was investigated by XRD and the phase transformation and coke deposition were observed by using SEM. TGA and TPO were performed for the identification of the carbonaceous compounds deposited on the catalyst surface.