Pengaruh Jenis Presipitan dan Iradiasi Ultrasonik pada Katalis Ni/CeO2-MgO-La2O3/Al2O3 untuk Reaksi Oksidasi Parsial Metana

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Abstrak

The effect of precipitant and ultrasonic over Ni7CeO,-MgO-La,0/A503 catalyst was studied in an atmospheric fixed-bed reactor for partial oxidation of methane. Two types of precipitant used in this work were Na2C)3 and NH4OH2 and the length of ultrasonic iradiation was 60 minutes (1 hour). The bulk surface area, nickel particle diameter, nickel dispersion and morphology of the catalysts were investigated by various characterization techniques, including BET] XRD, H; chemisorption and SEM The partial oxidation of methane to syngas was done at 800 ?C atmospheric pressure and the feed ratio (CH/01) was 2 : 1.2. It was found that catalysts prepared by using NH4OH2 precipitant have pore size that larger than those of catalysts prepared using Na,CO, precipitant. The effect of ultrasonic on the catalysts showed that ultrasonic irradiation enhanced the surface area of the catalyst and the nickel dispersion. SEM analyses shown changes of the catalyst morphology, i.e. the particle of the catalyst became smaller and more uniform because of the ultrasonic irradiation. Catalyst prepared using NH,0H precipitant and irradiated shown the best performance with 96% methane conversion.