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Methanation Catalyst for Low CO Concentration

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Abstract : A Ni-based catalyst supported by γ-Al2O3 was prepared by impregnation method, and the catalyst was used in a low CO and CO2 concentration methanation system. The effect of temperature, pressure and space velocity on the methanation reaction was investigated in an experimental fixed-bed reactor. The methanation reaction was operated at the conditions of 190-240°C, 3000-24000ml•g-1•h-1 and 1.5-3.5MPa. The results show that temperature and space velocity play important role on the reaction. With the increase of reaction temperature the CO and CO2 conversion increase and the selectivity of CH4 increase. And with the increase of the space velocity the conversion of CO and CO2 and the selectivity of CH4 decrease sharply.

Keywords : coke oven gas, methanntion, catalyst, fixed bed, performance
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