

Na Promoted Ni/ γ -Al₂O₃ Catalysts Prepared by Solution Combustion Method for Syngas Methanation

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Abstract : Ni-based catalysts with different amounts of Na as promoter from 2 to 6 wt % were prepared by solution combustion method. The catalytic activity was investigated in syngas methanation reaction. Carbon oxides conversion and methane selectivity are greatly influenced by sodium loading. Adding 2 wt% Na remarkably improves catalytic activity and long-term stability, attributed to its smaller mean NiO particle size, better distribution, and milder metal-support interaction. However, excess addition of Na results in deactivation distinctly due to the blockage of active sites.

Keywords : nickel catalysts, syngas methanation, sodium, solution combustion method

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