

عنوان مقاله:

Autothermal Reforming of Methane over Nickel Catalysts Supported on Nanocrystalline MgAl₂O₄ with High Surface Area

محل انتشار:

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خلاصه مقاله:

In this paper autothermal reforming of methane (ATR) was carried out over MgAl₂O₄ supported Ni catalysts with various Ni loadings. MgAl₂O₄ spinel with high specific surface area, as nanocrystalline carrier for nickel catalysts was synthesized by co-precipitation method with the addition of pluronic P123 triblock copolymer as surfactant. The prepared samples were characterized by X-ray Diffraction (XRD) and N₂ adsorption (BET) techniques. The results demonstrated that methane conversion is significantly increased with increasing the Ni content and methane conversion of 15% Ni/MgAl₂O₄ was higher than that of other catalysts in all operation temperatures. Furthermore the influences of H₂O/CH₄ and O₂/CH₄ molar ratio in feed and GHSV on activity of 5% Ni/MgAl₂O₄ catalyst were investigated.

کلمات کلیدی:

Autothermal reforming, MgAl₂O₄, Syngas, Nickel catalyst

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