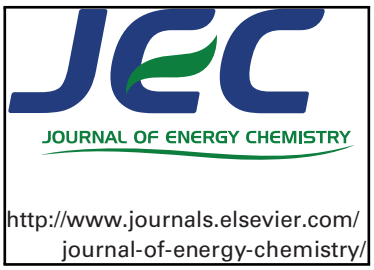

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Modulating the CO methanation activity of Ni catalyst by nitrogen doped carbon

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Abstract

Nitrogen doping has been proved to be an effective way to modify the properties of graphene and other carbon materials. Herein, we explore a composite with nitrogen doped C overlayers wrapping SiC substrate as a support for Ni (Ni/CN-SiC) and evaluate its effects on the methanation activity. The results show that both the activity and stability of Ni are enhanced. Characterization with STEM, XRD, XPS, Raman and H_2-TPR indicates that nitrogen doping generates more defects in the carbon overlayers, which benefit the dispersion of Ni. Furthermore, the reduction of Ni is facilitated.

Keywords

CO methanation; Ni catalyst; Carbon; Nitrogen doping; SiC