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عنوان مقاله:

Reverse water gas shift reaction over tungsten carbide prepared catalyst from waste date palm fronds at low temperatures reverse water gas shift reaction

محل انتشار:

نشریه آسیایی شیمی سبز, دوره 4, شماره 1 (سال: 1399)

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خلاصه مقاله:

The reverse water gas shift reaction over the prepared tungsten carbide alloy (WC/AC) from date palm fronds catalyst was studied by CO2 hydrogenation, temperature-programmed reduction of the WC/AC catalyst. In comparison to the reaction of CO2 alone, hydrogen can significantly promote the CO formation in the RWGS reaction. The formate derived from association of H2 and CO2 is proposed to be the key intermediate for CO production. Formate dissociation mechanism is the major reaction route for CO production. The reverse water gas shift (RWGS) reaction over WC/AC with potassium (K) promoter was studied by means of CO2 hydrogenation at temperature programmed. The main role of Potassium oxide (K2O) was to provide catalytic activity for decomposition of formats, besides acting as a promoter for CO2 adsorption. Hydrogen was dissociatively adsorbed on WC/AC and could spill over to K2O to associate with CO2. This resulted in the formation of formate species for the production of CO.

کلمات کلیدی:

Activated carbon, Potassium hydroxide, Tungsten Carbide, Reverse water gas shift

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