

Title (en)

METHOD OF HYDROGASIFICATION OF BIOMASS TO METHANE WITH LOW DEPOSITABLE TARS

Title (de)

VERFAHREN ZUR HYDROVERGASUNG VON BIOMASSE IN METHAN MIT NIEDRIGEM ABSCHIEDBAREM TEERGEHALT

Title (fr)

PROCÉDÉ D'HYDROGAZÉIFICATION DE BIOMASSE EN MÉTHANE PRÉSENTANT PEU DE GOUDRONS À REJETER

Publication

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Application

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Priority

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Abstract (en)

[origin: WO2014133486A1] Embodiments of a thermochemical method to convert lignocellulosic biomass to a useful fuel is disclosed in a process sequence resulting in low levels of depositable tars in the output gas stream. One disclosed embodiment comprises performing a sequence of steps at elevated pressure and elevated hydrogen partial pressure, including fast (or flash) hydrolysis of a lignocellulosic biomass feed followed sequentially with catalytically enhanced reactions for the formation of methane operating at moderate temperatures of from about 400°C to about 650°C and under moderately elevated pressure (about 5 atm to about 50 atm). A temperature rise in the catalyst above pyrolysis temperature is achieved without the addition of air or oxygen. Gas residence time at elevated temperature downstream of methane formation zones is extended well beyond the time required for methane formation. This sequence results in low depositable tars in the output gas stream. The catalyst promotes both the cracking of pyrolysis gases and reactions with hydrogen to preferentially form methane and non-deposit forming hydrocarbons, and also preferentially promotes coke re-gasification.

IPC 8 full level

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