

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

EP 2961720 A1 20160106 (EN)

Application

EP 13876228 A 20130226

Priority

US 2013027804 W 20130226

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) hydropyrolysis 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

B01J 23/755 (2006.01); **C01B 3/38** (2006.01); **C01B 3/50** (2006.01); **C10G 2/00** (2006.01); **C10G 3/00** (2006.01); **C10K 3/02** (2006.01); **C10K 3/04** (2006.01); **C10L 3/08** (2006.01)

CPC (source: EP)

B01J 23/755 (2013.01); **C01B 3/38** (2013.01); **C10G 2/32** (2013.01); **C10G 2/332** (2013.01); **C10G 3/50** (2013.01); **C10J 3/60** (2013.01); **C10K 3/023** (2013.01); **C10K 3/04** (2013.01); **C10L 3/08** (2013.01); **C01B 3/50** (2013.01); **C01B 2203/0233** (2013.01); **C01B 2203/0283** (2013.01); **C01B 2203/0415** (2013.01); **C01B 2203/042** (2013.01); **C01B 2203/043** (2013.01); **C01B 2203/0811** (2013.01); **C01B 2203/1241** (2013.01); **C10L 2290/04** (2013.01); **C10L 2290/06** (2013.01); **C10L 2290/10** (2013.01); **C10L 2290/54** (2013.01); **Y02E 50/10** (2013.01); **Y02P 20/145** (2015.11); **Y02P 20/52** (2015.11); **Y02P 30/20** (2015.11)

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

WO 2014133486 A1 20140904; CA 2901767 A1 20140904; EP 2961720 A1 20160106; EP 2961720 A4 20161109

DOCDB simple family (application)

US 2013027804 W 20130226; CA 2901767 A 20130226; EP 13876228 A 20130226