

Title (en)

ECOLOGICAL SEQUESTRATION OF CARBON DIOXIDE/INCREASE OF BIO-ENERGY OBTAINABLE THROUGH BIOMASS

Title (de)

ÖKOLOGISCHE SEQUESTRIERUNG VON KOHLENDIOXID / VERMEHRUNG DER DURCH BIOMASSE ERZIELBAREN BIOENERGIE

Title (fr)

SÉQUESTRATION ÉCOLOGIQUE DE DIOXYDE DE CARBONE/AUGMENTATION DE LA QUANTITÉ DE BIOÉNERGIE POUVANT ÊTRE OBTENUE À PARTIR D'UNE BIOMASSE

Publication

EP 2892983 A2 20150715 (DE)

Application

EP 12798134 A 20120904

Priority

- DE 2012000883 W 20120904
- DE 102011113106 A 20110909

Abstract (en)

[origin: WO2013034130A2] According to known methods, biomass is broken down under the action of water vapour via a carbon monoxide-hydrogen mixture (called synthesis gas) as an intermediate stage into hydrogen and carbon dioxide instead of being combusted directly to generate energy. Carbon dioxide is stored/sequestered and the hydrogen is used to generate energy. The transfer of bio-activity can also be effected within the same process by breaking down a mixture of biomass and fossil fuel (e.g. wood and coal) into carbon dioxide and hydrogen. The hydrogen is then reacted with half of the formed carbon dioxide to form methane and the remaining carbon dioxide is stored. The stored carbon dioxide and generated methane respectively comprise one half each of biological and fossil carbon. If the bio-activity of the stored bio-carbon dioxide is transferred to the fossil carbon in methane, a corresponding mixture of wood and coal produces 100% biomethane. Here, too, up to 100% biomethane can be obtained from coal-wood mixtures. By adding the hydrogen obtained from excess electrical energy to the biocarbon, the bio-energy based on the biomass used is even quadrupled. For a traceable eco-balance with such mixtures, it is important to quantify the bio-proportion in the two "end products" stored carbon dioxide and generated methane. For this purpose, use is made e.g. of the radiocarbon (C14) method.

IPC 8 full level

C01B 32/50 (2017.01); **C10J 3/00** (2006.01); **G06Q 10/06** (2012.01)

CPC (source: EP US)

C07C 1/12 (2013.01 - US); **C10J 3/00** (2013.01 - EP US); **C10L 3/10** (2013.01 - US); **C25B 1/04** (2013.01 - EP US); **F02C 3/22** (2013.01 - US); **C10J 2300/092** (2013.01 - EP US); **C10J 2300/093** (2013.01 - EP US); **C10J 2300/1612** (2013.01 - EP US); **C10J 2300/1662** (2013.01 - EP US); **C10J 2300/1684** (2013.01 - EP US); **Y02E 60/36** (2013.01 - EP US); **Y02P 20/133** (2015.11 - EP US)

Citation (search report)

See references of WO 2013034130A2

Citation (examination)

WO 2010075162 A1 20100701 - SHELL OIL CO [US], et al

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 2013034130 A2 20130314; **WO 2013034130 A3 20130627**; **WO 2013034130 A4 20130815**; DE 102011113106 A1 20130314; DE 112012003740 A5 20140522; EP 2892983 A2 20150715; US 2015240716 A1 20150827; US 2018258847 A1 20180913

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DE 2012000883 W 20120904; DE 102011113106 A 20110909; DE 112012003740 T 20120904; EP 12798134 A 20120904; US 201214426002 A 20120904; US 201815973674 A 20180508