(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
2 August 2012 (02.08.2012)

WIPO | PCT

(10) International Publication Number
WO 2012/103135 A3

(51) International Patent Classification:
C10G 3/00 (2006.01) *B09B 3/00* (2006.01)
C10L 1/16 (2006.01) *C08B 37/00* (2006.01)

(21) International Application Number:
PCT/US2012/022425

(22) International Filing Date:
24 January 2012 (24.01.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/436,088 25 January 2011 (25.01.2011) US
61/577,496 19 December 2011 (19.12.2011) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH,

[Continued on next page]

(54) Title: PRODUCTION OF FUEL FROM CHEMICALS DERIVED FROM BIOMASS

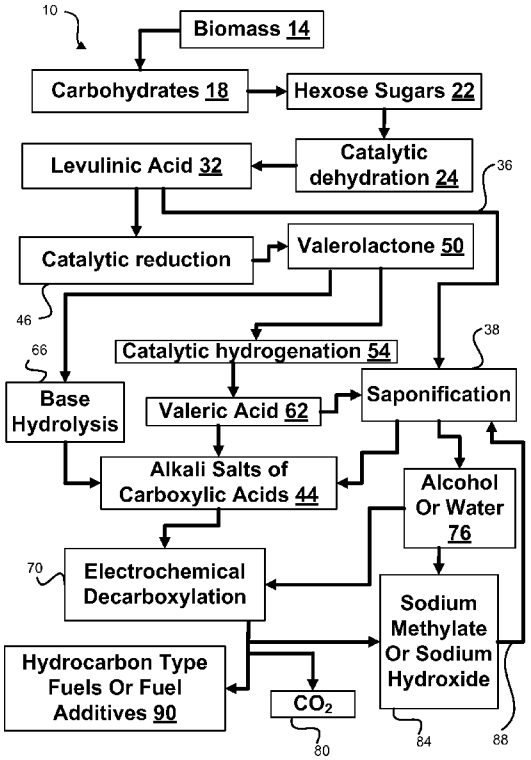

FIGURE 1

(57) Abstract: Hydrocarbons may be formed from six carbon sugars. This process involves obtaining a quantity of a hexose sugar. The hexose sugar may be derived from biomass. The hexose sugar is reacted to form an alkali metal levulinate, an alkali metal valerate, an alkali metal 5-hydroxy pentanoate, or an alkali metal 5-alkoxy pentanoate. An anolyte is then prepared for use in a electrolytic cell. The anolyte contains the alkali metal levulinate, the alkali metal valerate, the alkali metal 5-hydroxy pentanoate, or the alkali metal 5-alkoxy pentanoate. The anolyte is then decarboxylated. This decarboxylating operates to decarboxylate the alkali metal levulinate, the alkali metal valerate, the alkali metal 5-hydroxy pentanoate, or the alkali metal 5-alkoxy pentanoate to form radicals, wherein the radicals react to form a hydrocarbon fuel compound.

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GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
22 November 2012

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/022425

A. CLASSIFICATION OF SUBJECT MATTER

C10G 3/00(2006.01)i, C10L 1/16(2006.01)i, B09B 3/00(2006.01)i, C08B 37/00(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C10G 3/00; C07C 31/30; C25B 3/00; C25D 17/00; C07C 31/18; C25B 3/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: levulinate, valerate, hydroxy pentanoate, alkoxy pentanoate, electrolysis, alkali metal, decarboxylating

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6238543 B1 (LAW, JR., CLARENCE GARLAND et al.) 29 May 2001 See abstract, column 2, lines 44-48, column 3, line 10-column 4, line 45, claims 1, 7	1-16
A	US 5841002 A (HARRISON, GEORGE EDWIN et al.) 24 November 1998 See abstract, column 7, line 66-column 8, line 65, column 10, line 51-column 11, line 1	1-16
A	US 2005/0177008 A1 (BALAGOPAL, SHEKAR et al.) 11 August 2005 See abstract, paragraphs [0030]-[0031], [0038]-[0044], [0058]-[0061], claims 1, 18, 32	1-16
A	US 2010/0258447 A1 (FAN, QINBAI) 14 October 2010 See abstract, paragraphs [0013]-[0016], [0025]-[0026], claims 1, 13	1-16

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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Date of the actual completion of the international search	Date of mailing of the international search report
27 SEPTEMBER 2012 (27.09.2012)	**28 SEPTEMBER 2012 (28.09.2012)**

Name and mailing address of the ISA/KR
Korean Intellectual Property Office
189 Cheongsa-ro, Seo-gu, Daejeon Metropolitan City, 302-701, Republic of Korea
Facsimile No. 82-42-472-7140

Authorized officer
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Telephone No. 82-42-481-8404

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/022425

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