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- (71) **Applicant:** CHEMTEX ITALIA S.P.A. [IT/IT]; Strada Ribrocca 11, I-15057 Tortona (Alessandria) (IT).
- (72) **Inventors:** RYBA, Steven; 268 S. Medina Line Road, Wadsworth, Ohio 44281 (US). ELLIOTT, Guliz; 7250 Honeydale Drive, Northfield Center, Ohio 44067 (US). GASTALDO, Dan; 16441 Barriermore Avenue, Middleburg Heights, Ohio 44130 (US). MURRAY, Aaron; 316 South Street, Chardon, Ohio 44024 (US).
- (74) **Agents:** GERBINO, Angelo et al.; c/o Jacobacci & Partners SpA, Corso Emilia 8, I-10152 Torino (IT).
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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, PA, 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.

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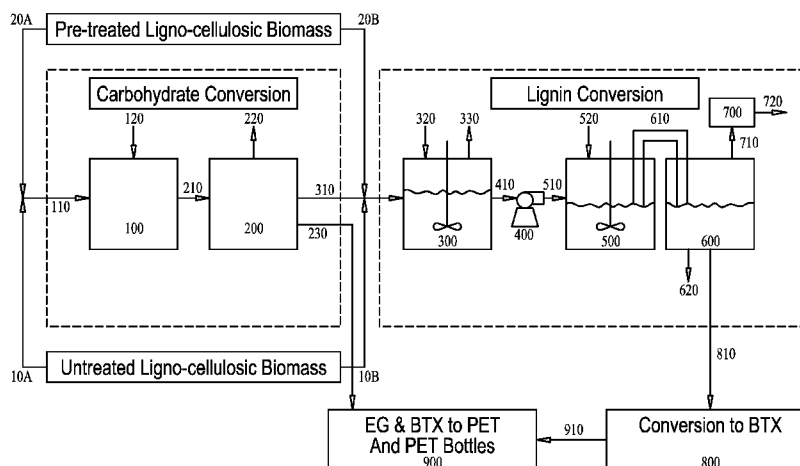
(54) Title: CONTINUOUS PROCESS FOR CONVERSION OF LIGNIN TO USEFUL COMPOUNDS

FIG. 1

(57) **Abstract:** This specification discloses an operational continuous process to convert lignin as found in ligno-cellulosic biomass before or after converting at least some of the carbohydrates. The continuous process has been demonstrated to create a slurry comprised of lignin, raise the slurry comprised of lignin to ultra-high pressure, deoxygenate the lignin in a lignin conversion reactor over a catalyst which is not a fixed bed without producing char. The conversion products of the carbohydrates or lignin can be further processed into polyester intermediates for use in polyester preforms and bottles.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/053626

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07C37/50 C08G63/00
ADD.

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 C07C C08G

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

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

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2011/117705 A2 (ENI SPA [IT]; DELLEDONNE DANIELE [IT]; BUZZONI ROBERTO [IT]; BIANCHI D) 29 September 2011 (2011-09-29) cited in the application page 14, lines 12-18 page 18, lines 17-22 page 22, line 28 - page 23, line 18 page 24, lines 12-17 page 25, line 22 - page 26, line 2; figure 1 ----- -/--	1-21

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

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"P" document published prior to the international filing date but later than the priority date claimed

"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

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Cagnoli, Michele

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/053626

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PARVEEN KUMAR ET AL: "Methods for Pretreatment of Lignocellulosic Biomass for Efficient Hydrolysis and Biofuel Production", INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH, AMERICAN CHEMICAL SOCIETY, US, vol. 48, no. 8, 15 April 2009 (2009-04-15), pages 3713-3729, XP008147200, ISSN: 0888-5885, DOI: 10.1021/IE801542G [retrieved on 2009-03-20] the whole document	1-21
A	----- XINGYU WANG ET AL: "Exploiting H-transfer reactions with RANEY Ni for upgrade of phenolic and aromatic biorefinery feeds under unusual, low-severity conditions", ENERGY & ENVIRONMENTAL SCIENCE, vol. 5, no. 8, 1 January 2012 (2012-01-01), page 8244, XP055067243, ISSN: 1754-5692, DOI: 10.1039/c2ee21855k cited in the application the whole document -----	1-21

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/053626

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2011117705 A2	29-09-2011	EP 2550344 A2	30-01-2013
		US 2013060071 A1	07-03-2013
		WO 2011117705 A2	29-09-2011
