



(51) International Patent Classification:

C07C 51/12 (2006.01) C07C 51/09 (2006.01)
C07C 53/08 (2006.01)

(21) International Application Number:

PCT/US2022/022856

(22) International Filing Date:

31 March 2022 (31.03.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/170,283 02 April 2021 (02.04.2021) US

(71) Applicant: **LYONDELLBASELL ACETYLS, LLC**
[US/US]; 1221 McKinney Street, Suite 300, Houston, TX
77010 (US).

(72) Inventors: **VASILIS, Papavassiliou**; c/o LyondellBasell
IP Legal Dept., 1221 McKinney Street, Suite 300, Houston,
TX 77010 (US). **HALLINAN, Noel, C.**; c/o LyondellBasell
IP Legal Dept., 1221 McKinney Street, Suite 300, Houston,
TX 77010 (US). **RAMAGE, David, L.**; c/o LyondellBasell

IP Legal Dept., 1221 McKinney Street, Suite 300, Houston,
TX 77010 (US). **SAWYER, Gary, A.**; c/o LyondellBasell
IP Legal Dept., 1221 McKinney Street, Suite 300, Houston,
TX 77010 (US). **ZAMARRIPA, Rene**; c/o LyondellBasell
IP Legal Dept., 1221 McKinney Street, Suite 300, Houston,
TX 77010 (US).

(74) Agent: **STREETER, Leslie** et al.; LyondellBasell, 1221
McKinney Street, Suite 300, Houston, TX 77010 (US).

(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, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, IT, JM, JO, JP, KE, KG, KH,
KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM,
ZW.

(54) Title: METHODS AND SYSTEMS FOR PRODUCING ACETIC ACID

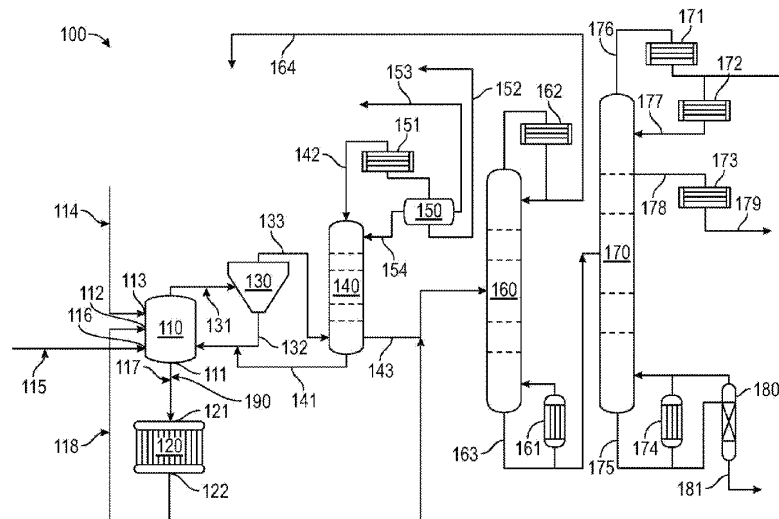


Figure 2

(57) Abstract: Methods and systems for producing acetic acid, including glacial acetic acid. A first stream of a reactor fluid that includes methyl acetate, water, and a first amount of carbon monoxide may be forwarded from a reactor to a reactor cooler to form a cooled reactor fluid. The cooled reactor fluid may have a concentration of methyl acetate that is lower than the concentration of methyl acetate in the reactor fluid.

[Continued on next page]

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, KM, 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))*