

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 January 2012 (12.01.2012)

PCT

(10) International Publication Number
WO 2012/006499 A2

(51) International Patent Classification:
C07C 27/04 (2006.01)

(21) International Application Number:
PCT/US2011/043310

(22) International Filing Date:
8 July 2011 (08.07.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/363,056 9 July 2010 (09.07.2010) US
13/094,714 26 April 2011 (26.04.2011) US

(71) Applicant (for all designated States except US):
CELANESE INTERNATIONAL CORPORATION
[US/US]; 1601 West LBJ Freeway, Dallas, Texas 75234
(US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SARAGER, Lincoln** [US/US]; 16110 La Cabana Drive, Houston, Texas 77062 (US). **WARNER, R. Jay** [US/US]; 3507 East Pine Brook Way, Houston, Texas 77062 (US). **JEVTIC, Radmila** [RS/US]; 7033 Red Coral Drive, Pasadena, Texas 77505 (US). **JOHNSTON, Victor J.** [US/US]; 3234 Pleasant Cove Court, Houston, Texas 77059 (US). **LEE, David** [GB/US]; 3418 Palm Bay Circle, Seabrook, Texas 77586 (US).

(74) Agents: **FREDLAKE, Keith DS** et al.; Roberts Mlotkowski Safran & Cole, 7918 Jones Branch Drive, Suite 500, McLean, Virginia 22102 (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, 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, RO, RS, RU, 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, GM, KE, LR, LS, MW, MZ, NA, 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:

— without international search report and to be republished upon receipt of that report (Rule 48.2(g))

(54) Title: FINISHING REACTOR FOR PURIFYING ETHANOL

(57) Abstract: A process for purifying ethanol by using a finishing reactor to remove impurities, such as ethyl acetate, acetaldehyde, acetic acid, and diethyl acetal, present in ethanol after distilling a crude product from a hydrogenation reactor. The finishing reactor may reduce the impurities in the presence of hydrogen and a catalyst or may hydrolyze the impurities.



WO 2012/006499 A2