

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 August 2010 (26.08.2010)

PCT

(10) International Publication Number
WO 2010/096336 A2

(51) International Patent Classification:

B01J 23/62 (2006.01) **B01J 27/06** (2006.01)
B01J 29/74 (2006.01) **B01J 23/70** (2006.01)

(21) International Application Number:

PCT/US2010/023972

(22) International Filing Date:

12 February 2010 (12.02.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/391,035 23 February 2009 (23.02.2009) US

(71) Applicant (for all designated States except US): **UOP LLC** [US/US]; 25 East Algonquin Road, P.O. Box 5017, Des Plaines, Illinois 60017-5017 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GAJDA, Gregory, J.** [US/US]; UOP LLC, 25 East Algonquin Road, P.O. Box 5017, Des Plaines, Illinois 60017-5017 (US). **LAPINSKI, Mark, P.** [US/US]; UOP LLC, 25 East Algonquin Road, P.O. Box 5017, Des Plaines, Illinois 60017-5017 (US). **DONNER, Jeffry, T.** [US/US]; UOP LLC, 25 East Algonquin Road, P.O. Box 5017, Des Plaines, Illinois 60017-5017 (US). **BARE, Simon, R.** [US/US]; UOP LLC, 25 East Algonquin Road, P.O. Box 5017, Des Plaines, Illinois 60017-5017 (US).

(74) Common Representative: **UOP LLC**; 25 East Algonquin Road, P.O. Box 5017, Des Plaines, Illinois 60017-5017 (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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, 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: REFORMING CATALYST

(57) Abstract: In one embodiment, a reforming catalyst can include indium, tin, and a catalytically effective amount of a group VIII element for one or more reforming reactions. Typically, at least 25%, by mole, of the indium is an In(3+) species based on the total moles of indium after exposure for 30 minutes in an atmosphere including 100% hydrogen, by mole, at a temperature of 565°C. Usually, no more than 25%, by mole, of the tin is a Sn(4+) species based on the total moles of tin after exposure for 30 minutes in an atmosphere including 100% hydrogen, by mole, at a temperature of 565°C.



WO 2010/096336 A2