



(51) International Patent Classification:

C07C 2/76 (2006.01) C07C 15/04 (2006.01)
C07C 11/04 (2006.01)

(21) International Application Number:

PCT/EP2011/056200

(22) International Filing Date:

19 April 2011 (19.04.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/327,350 23 April 2010 (23.04.2010) US

(71) Applicant (for all designated States except US): **SHELL INTERNATIONAL RESEARCH MAATSCHAPPIJ B.V.** [NL/NL]; Carel van Bylandtlaan 30, NL-2596 HR The Hague (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CHEWTER, Leslie, Andrew** [GB/NL]; Grasweg 31, NL-1031 HW Amsterdam (NL). **HENRY, Hervé** [FR/NL]; Hoofdweg 256, NL-3067 GJ Rotterdam (NL). **MADGAVKAR, Ajay** [US/US]; 3102 Bentgrass Drive, Katy, Texas 77450 (US). **VAN WESTRENEN, Jeroen** [NL/NL]; Grasweg 31, NL-1031 HW Amsterdam (NL).

(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.

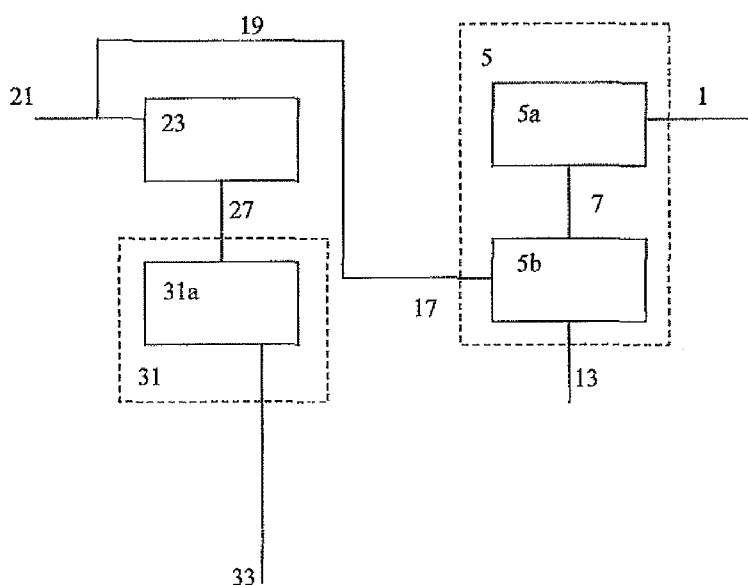
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, 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:

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

(54) Title: PROCESS FOR PRODUCING AROMATIC HYDROCARBONS AND ETHYLENE

Figure 1.



(57) Abstract: The present invention provides a process for producing aromatic hydrocarbons and ethylene, comprising: a. contacting a lower alkane feed comprising at least one of ethane, propane and butane with an aromatic hydrocarbon conversion catalyst within an alkane-to-aromatic zone to obtain at least hydrogen and aromatic reaction products, including at least benzene; b. converting an oxygenate feedstock in an oxygenate-to-olefin zone to obtain olefins, including at least ethylene; wherein at least part of the oxygenate feedstock is obtained by providing at least part of the hydrogen obtained in step a) and a feed containing carbon monoxide and/or carbon dioxide to an oxygenate synthesis zone and synthesizing oxygenates. In another aspect the invention provides an integrated system for aromatic hydrocarbons and ethylene and the use of hydrogen obtained from a process to convert lower alkanes to benzene to produce an oxygenate feed for an oxygenate-to-olefin process.