

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
8 September 2006 (08.09.2006)

PCT

(10) International Publication Number
WO 2006/094008 A2

(51) International Patent Classification: **Not classified**

(21) International Application Number:
PCT/US2006/007170

(22) International Filing Date:
28 February 2006 (28.02.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/656,945 28 February 2005 (28.02.2005) US
11/362,255 27 February 2006 (27.02.2006) US

(71) Applicant (for all designated States except US): **EXXON-MOBIL RESEARCH AND ENGINEERING COMPANY** [US/US]; 1545 ROUTE 22 EAST, P.O. Box 900, Annandale, New Jersey 08801-0900 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **UMANSKY, Benjamin, Santiago** [US/US]; 12766 Alder Wood Drive, Fairfax, Virginia 22033 (US). **CLARK, Michael, Christopher** [US/US]; 4306 Raintree Court, Pasadena,

Texas 77505 (US). **DANDEKAR, Ajit, Bhaskar** [IN/US]; 315 West 33rd Street, Apt. 30E, New York, New York 10001 (US). **ELIA, Christine, Nicole** [US/US]; 437 Garretson Road, Bridgewater, New Jersey 08807 (US).

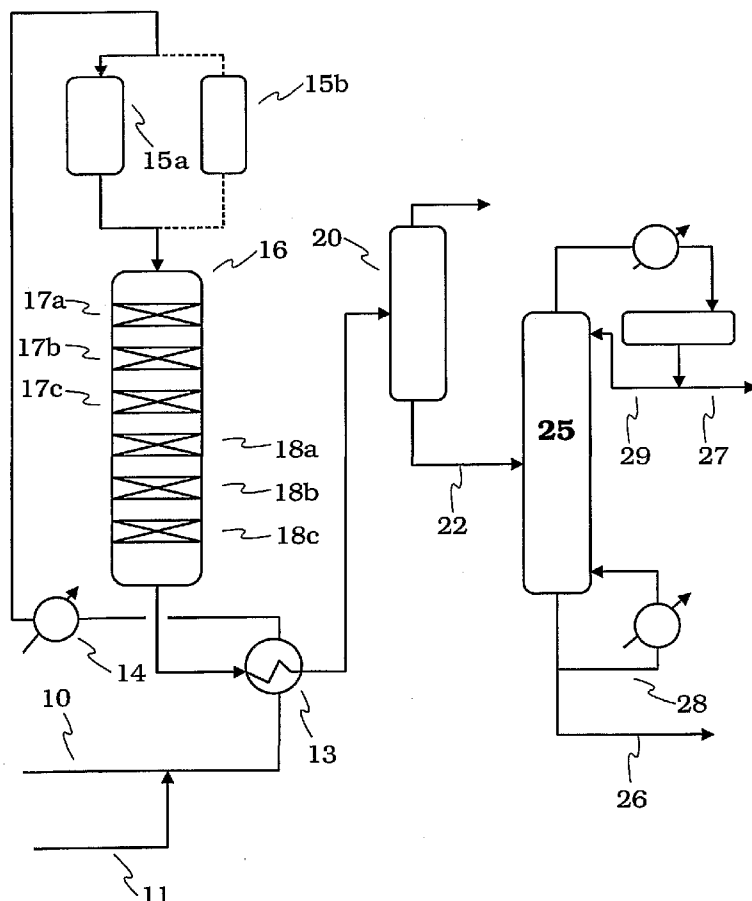
(74) Agents: **HARRIS, Gerald** et al.; EXXONMOBIL RESEARCH AND ENGINEERING COMPANY, 1545 ROUTE 22 EAST, P.O. Box 900, Annandale, New Jersey 08801-0900 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

[Continued on next page]

(54) Title: VAPOR PHASE AROMATICS ALKYLATION PROCESS



(57) Abstract: A process for the production of high octane number gasoline from light refinery olefins and benzene-containing aromatic streams such as reformate. The process achieves good utilization of both the ethylene and the propylene present in the mixed olefin feed from the unsaturated gas plant while reducing gasoline benzene levels. The light olefins including ethylene and propylene are reacted with the light aromatic stream containing benzene and other single ring aromatic compounds to form a gasoline boiling range product containing alkylaromatics. The reaction is carried out with a two-catalyst system which comprises a member of the MWW family of zeolites and an intermediate pore size zeolite such as ZSM-5 using a fixed catalyst bed in both stages. Use of the two catalyst system enables the conversion of the ethylene and propylene components of the olefin feed to be converted to alkylaromatics under favorable conditions.



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, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, 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*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.