

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 July 2009 (09.07.2009)

PCT

(10) International Publication Number
WO 2009/085289 A1

(51) International Patent Classification:
B01J 23/40 (2006.01)

(21) International Application Number:
PCT/US2008/014054

(22) International Filing Date:
24 December 2008 (24.12.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/009,385 28 December 2007 (28.12.2007) 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, NJ 08801-0900 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ELIA, Christine, N.** [US/US]; 437 Garretson Road, Bridgewater, NJ 08807 (US). **KALYANARAMAN, Mohan** [US/US]; 732 Iris Lane, Media, PA 19063 (US). **ZHANG, Lei** [CN/US]; 4239 Hunt Club Circle, Apt. 1321, Fairfax, VA 22033 (US). **DAAGE, Michel, A.** [FR/US]; 1847 Viola Lane, Hellertown, PA 18055 (US). **SINCLAIR, Darden** [US/US]; 6555 Westgate Drive, Beaumont, TX 77706 (US). **SOKOLOVSKII, Valery** [US/US]; 578 Ironwood Terrace, Sunnyvale, CA 94086 (US). **LOWE, David, M.** [US/US]; 992-8 Belmont Terrace, Sunnyvale, CA 94086 (US). **HAN, Jun** [CN/US]; 685 Carlisle Way,

Apt. 44, Sunnyvale, CA 94087 (US). **OHLE, Nicholas** [US/US]; 351 Kenilworth Avenue, San Leandro, CA 94577 (US). **GIAQUINTA, Daniel** [US/US]; 12091 Candy Lane, Saratoga, CA 95070 (US). **VOLPE, Anthony, F.** [US/US]; 2582 Tartan Drive, Santa Clara, CA 95051 (US).

(74) Agents: **BAKUN, Estelle, C.** et al.; Exxonmobil Research And Engineering Company, 1545 Route 22 East, P.O. Box 900, Annandale, NJ 08801-0900 (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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, MT, NL, NO, 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:
— with international search report

(54) Title: MULTIPLE MOLECULAR SIEVE CATALYST FOR SOUR SERVICE DEWAXING

(57) Abstract: Catalysts for dewaxing of hydrocarbon feeds, particularly feeds with elevated sulfur and nitrogen levels, are provided. The dewaxing catalysts include at least two zeolites, including a zeolite with a low silica to alumina ratio. The catalysts may be combined with a low surface binder, or alternatively the catalysts as formulated may have a high ratio of zeolite surface area to external surface area.

WO 2009/085289 A1