



(51) International Patent Classification:

C10G 45/04 (2006.01) *C10G 65/04* (2006.01)
B01J 21/10 (2006.01) *C10G 3/00* (2006.01)
B01J 23/06 (2006.01) *B01J 23/00* (2006.01)
B01J 23/28 (2006.01) *B01J 23/888* (2006.01)
B01J 23/30 (2006.01)

(21) International Application Number:

PCT/US2013/034209

(22) International Filing Date:

28 March 2013 (28.03.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/617,984 30 March 2012 (30.03.2012) US
 13/851,176 27 March 2013 (27.03.2013) US

(71) Applicant: EXXONMOBIL RESEARCH AND ENGINEERING COMPANY [US/US]; 1545 Route 22 East, P.O. Box 900, Annandale, NJ 08801-0900 (US).

(72) Inventors: **FINGLAND, Bradley, R.**; 29 Indian Creek Road, Annandale, NJ 08801 (US). **HANKS, Patrick, Loring**; 12660 Marcum Court, Fairfax, VA 22033 (US). **SOLED, Stuart, Leon**; 21 Cooks Cross Road, Pittstown, NJ 08867 (US). **MISEO, Sabato**; 770 County Road 579, Pittstown, NJ 08867 (US).(74) Agents: **BORDELON, Bruce, M.** 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, BN, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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: COPROCESSING OF BIOFEEDS WITH BULK MIXED METAL CATALYSTS

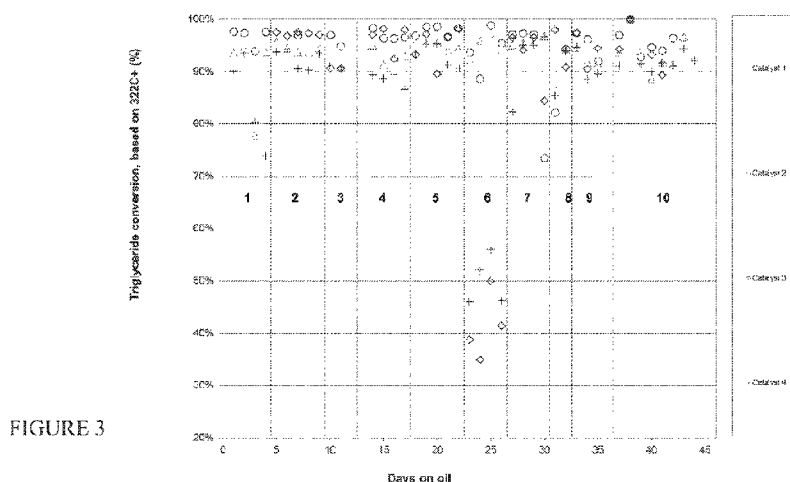


FIGURE 3

(57) **Abstract:** This invention relates to methods for deoxygenation utilizing bulk metal catalysts feedstocks derived in part or whole from biological sources and alternatively, further hydrotreatment processing of such deoxygenated feedstocks. Feedstocks containing bio-derived feed components, and preferably additionally mineral oil feed components, are deoxygenated in a first stage or zone using a bulk metal catalyst. In additional embodiments, the deoxygenated feedstock effluent from the deoxygenation stage is further subjected to a hydrodesulfurization stage or zone.