



(51) International Patent Classification:

G01N 33/28 (2006.01) **B01D 11/04** (2006.01)
G01N 1/40 (2006.01) **G01N 30/16** (2006.01)

(21) International Application Number:

PCT/US2012/043104

(22) International Filing Date:

19 June 2012 (19.06.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/498,867 20 June 2011 (20.06.2011) 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): **DISANZO, Frank, P.** [US/US]; 1708 Independence Lane, Cherry Hill, NJ 08003 (US). **SHI, Eric, S.** [SG/SG]; #11-02, 28 Bukit Batok Street 52, Singapore 659248 (SG). **SHIBASAKI, Masato** [JP/JP]; 3-25-16 Yatsu, Narashino-shi, Chiba,

275-0026 (JP). **YAMAMOTO, Shigeharu** [JP/JP]; 3-8-61 Nishihama, Wakayama-shi, Wakayama, 641-0036 (JP). **MORITA, Hisao** [JP/JP]; 742-1 Kangiji, Aridagawa-cho Arida-gun, Wakayama, 643-0161 (JP). **TAKAYAMA, Norio** [JP/JP]; 4-4-29 Makitukadai, Sakai-shi, Osaka, 590-0114 (JP).

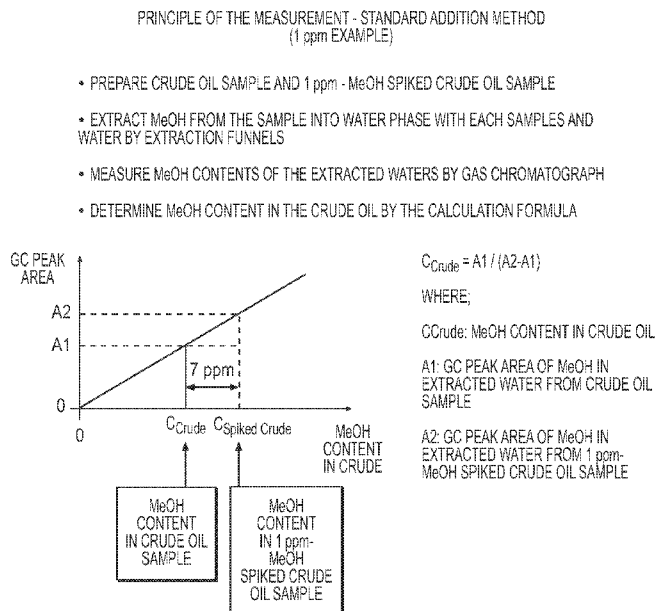
(74) Agents: **PURWIN, Paul, E.** et al.; EXXONMOBIL RESEARCH AND ENGINEERING COMPANY, 1545 Route 22 East, P.O. Box 900, Annandale, NJ 08801-0900 (US).

(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, 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, 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,

[Continued on next page]

(54) Title: METHODS FOR DETERMINING METHANOL CONTENT IN CRUDE OILS

**FIG. 7**

(57) Abstract: A test method for the determination of methanol in crude oils to levels as low as 0.5 ppm is disclosed. The method includes extracting methanol into a water phase from a test sample of the crude oil forming a test sample extract. The method further includes extracting methanol into a water phase from a reference sample of the crude oil forming a reference sample extract, wherein the reference sample having a predetermined amount of methanol added thereto. The method further includes measuring the methanol content in the test sample extract and the methanol content in the reference sample extract. The method also includes determining the methanol content of the crude oil based upon the methanol content in the test sample extract and the methanol content in the reference sample extract.



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))*