



(51) International Patent Classification:

B01J 20/18 (2006.01) *C10G 29/04* (2006.01)
C10G 25/03 (2006.01) *C10G 7/06* (2006.01)
C10G 25/05 (2006.01)

(21) International Application Number:

PCT/US2012/055967

(22) International Filing Date:

19 September 2012 (19.09.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/538,492 23 September 2011 (23.09.2011) US
 13/622,043 18 September 2012 (18.09.2012) 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

(71) Applicants (for US only): **NOVAK, William, J.** [US/US]; 230 Old Farm Road, Bedminster, NJ 07921 (US). **GATT, Joseph, E.** [US/US]; 100 Westchester Terrace, Annandale, NJ 08801 (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.

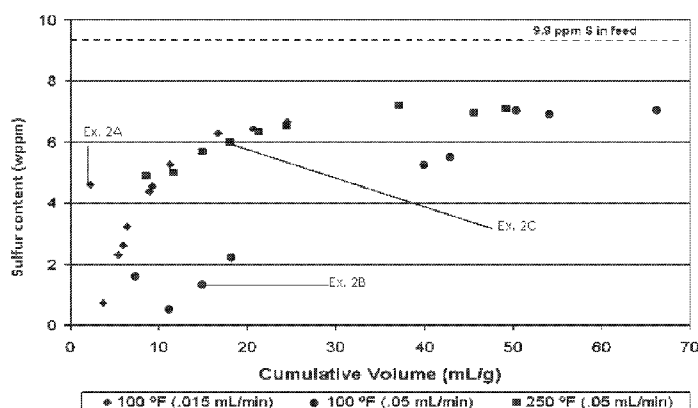
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE,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

FIG. 1



(57) Abstract: The present invention relates to methods for removing sulfur from a hydrocarbon fuel, or fuel precursor feedstream, such as methods comprising contacting a hydrocarbon fuel or fuel precursor feedstream having a relatively low sulfur content with a sulfur sorbent material comprising an active copper component disposed on a zeolitic and/or mesoporous support under conditions sufficient to reduce the sulfur content by at least 20 wt% and/or to about 15 wppm or below, thus forming a hydrocarbon fuel product. In some advantageous embodiments, the contacting conditions can include a temperature of about 392°F (about 200°C) or less.