

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
26 March 2009 (26.03.2009)

PCT

(10) International Publication Number
WO 2009/039020 A1

(51) International Patent Classification:

C10G 45/02 (2006.01) **C10G 65/06** (2006.01)
C10G 45/32 (2006.01)

(21) International Application Number:

PCT/US2008/075914

(22) International Filing Date:

11 September 2008 (11.09.2008)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/973,336 18 September 2007 (18.09.2007) US

(71) Applicant (for SM only): **SHELL OIL COMPANY**
[US/US]; One Shell Plaza, P.O. Box 2463, Houston, Texas
77252-2463 (US).

(71) Applicant (for all designated States except US): **SHELL
INTERNATIONALE RESEARCH MAATSCHAPPIJ
B.V.** [NL/NL]; Carel van Bylandtlaan 30, NL-2596 HR The
Hague (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **HIMELFARB, Paul
Benjerman** [US/US]; 927 Ivy Wall Drive, Houston, Texas
77079 (US).

(74) Agent: **STEWART, Charles W.**; Shell Oil Company, One
Shell Plaza, P.O. Box 2463, Houston, Texas 77252-2463
(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
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(54) Title: PROCESS FOR THE DEEP DESULFURIZATION OF HEAVY PYROLYSIS GASOLINE

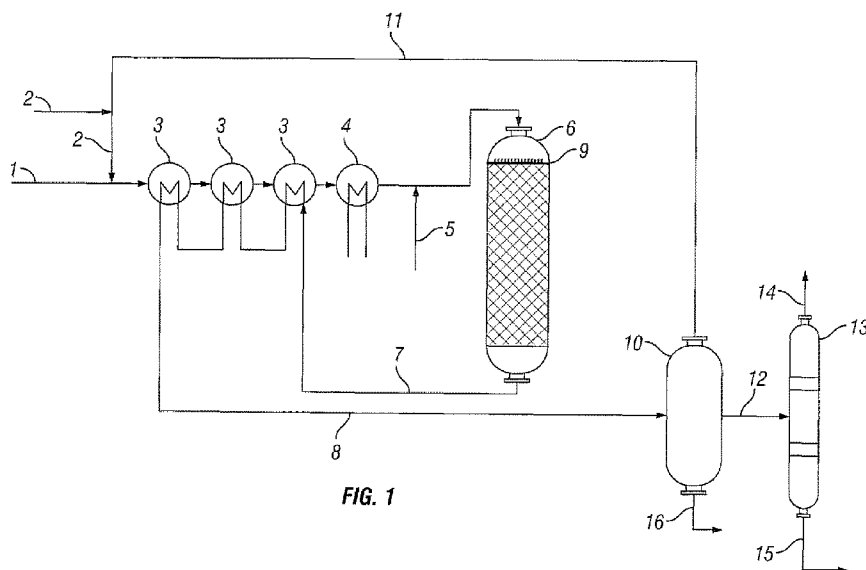


FIG. 1

(57) Abstract: A process for the deep desulfurization of a heavy pyrolysis gasoline to very low levels of organic sulfur, e.g., 30 ppmv or less, with minimal octane number loss through aromatics saturation. The deep desulfurization is accomplished by contacting the heavy pyrolysis gasoline feedstock, partially in liquid and partially in gaseous phase, with a hydrogen treat gas containing a minimum H₂S level in the presence of a hydrogenation catalyst in a one or two reactor system operated in trickle flow, using a low temperature, moderate pressure operating condition.