



(51) International Patent Classification:

C10G 67/02 (2006.01) *C10L 1/30* (2006.01)
C10G 45/06 (2006.01) *B01F 3/08* (2006.01)
C10L 1/08 (2006.01)

(21) International Application Number:

PCT/US2009/058755

(22) International Filing Date:

29 September 2009 (29.09.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/244,349 2 October 2008 (02.10.2008) US

(71) Applicant (*for all designated States except US*):
CHEVRON U.S.A. INC. [US/US]; 6001 Bollinger
 Canyon Road, San Ramon, California 94583 (US).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): **MILLER, Stephen
 Joseph** [US/US]; 520 45th Avenue, San Francisco, Cali-
 fornia 94121 (US).

(74) Agents: **MICKELSON, Edward T.** et al.; Chevron Cor-
 poration, Law Department, Post Office Box 6006, San
 Ramon, California 94583-0806 (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, 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, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM,
 TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
 ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted
 a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of
 the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))

[Continued on next page]

(54) Title: CO-PROCESSING DIESEL FUEL WITH VEGETABLE OIL TO GENERATE A LOW CLOUD POINT HYBRID
 DIESEL BIOFUEL

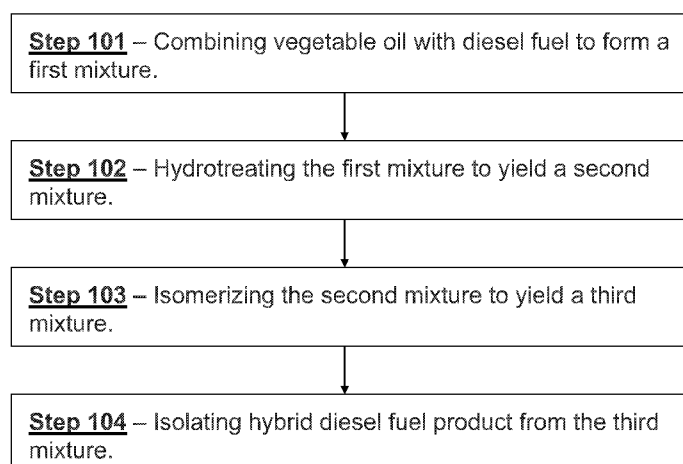


Fig. 1

(57) Abstract: The foregoing describes methods and systems for co-processing vegetable oil and petroleum diesel to yield a hybrid diesel biofuel composition. As previously stated, in some embodiments the present invention is directed to methods/systems by/with which a mixture of vegetable oil and petroleum diesel is co-processed in two stages: the mixture is first hydrotreated to yield a reduced-sulfur hybrid intermediate, and then the hybrid intermediate is processed in an isomerization unit to yield a low cloud point hybrid diesel product that is partially derived from biomass. A notable benefit of at least some such methods/systems is that interstage removal of H₂S and NH₃ is not required between the stages of hydrotreating and isomerizing, wherein such benefit is afforded by sulfur- and nitrogen-tolerant isomerization catalysts.



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
8 July 2010