

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
25 November 2021 (25.11.2021)



(10) International Publication Number
WO 2021/236457 A1

(51) International Patent Classification:

B01J 23/755 (2006.01) *B01J 29/16* (2006.01)
B01J 29/08 (2006.01)

(21) International Application Number:

PCT/US2021/032561

(22) International Filing Date:

14 May 2021 (14.05.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/028,069 21 May 2020 (21.05.2020) US

(71) Applicant: **CHEVRON U.S.A. INC.** [US/US]; 6001 Bollinger Canyon Road, San Ramon, CA 94583 (US).

(72) Inventors: **ZHAN, Bi-Zeng**; Chevron Corporation, P.O. Box 6006, San Ramon, CA 94583 (US). **LIANG, Ann, Jia-Bao**; Chevron Corporation, P.O. Box 6006, San Ramon, CA 94583 (US). **MAESEN, Theodorus Ludovicus**,

Michael; Chevron Corporation, P.O. Box 6006, San Ramon, CA 94583 (US).

(74) Agent: **HAYWORTH, Melissa, M.** et al.; Merchant & Gould, P.O. Box 2903, Minneapolis, MN 55402 (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, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, 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, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

(54) Title: USE OF MTW-ZEOLITE IN SUPPORT FOR HYDROCRACKING CATALYSTS WITH IMPROVED SELECTIVITY AND COLD FLOW PROPERTY OF MIDDLE DISTILLATE

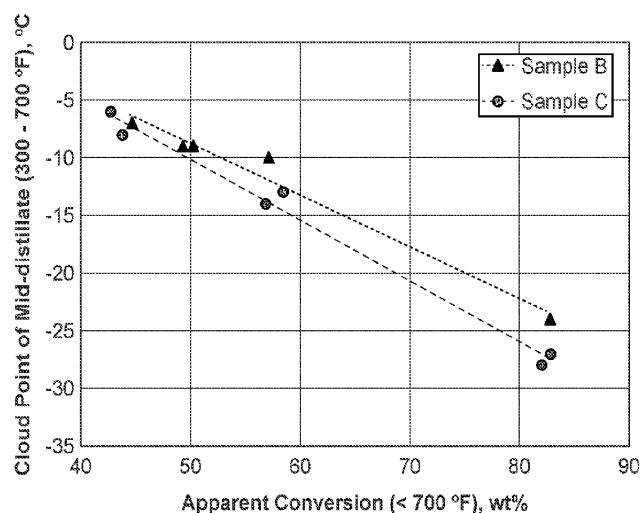


FIG. 1

(57) Abstract: The process comprises hydrocracking a hydrocarbon feed in a single stage. The catalyst comprises a base impregnated with metals from Group 6 and Groups 8 through 10 of the Periodic Table. The base of the catalyst used in the present hydrocracking process comprises alumina, an amorphous silica-alumina (ASA) material, aUSY zeolite, optionally a beta zeolite, and zeolite ZSM-12.

[Continued on next page]

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,
KM, ML, MR, NE, SN, TD, TG).

Published:

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