

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

(19) World Intellectual Property
Organization
International Bureau



(10) International Publication Number
WO 2022/018624 A1

(43) International Publication Date
27 January 2022 (27.01.2022)

(51) International Patent Classification:

C10M 141/12 (2006.01) *C10N 40/14* (2006.01)
C10N 10/04 (2006.01) *C10N 40/25* (2006.01)
C10N 20/00 (2006.01) *C10N 60/14* (2006.01)
C10N 30/00 (2006.01)

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))

(21) International Application Number:

PCT/IB2021/056527

(22) International Filing Date:

20 July 2021 (20.07.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/054,275 21 July 2020 (21.07.2020) US

Published:

- with international search report (Art. 21(3))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE

(71) Applicants: **CHEVRON JAPAN LTD.** [JP/JP]; Atago Green Hills Mori Tower 18F, 2-5-1 Atago Minato-Ku, Tokyo, 105-6218 (JP). **CHEVRON ORONITE COMPANY LLC** [US/US]; 6001 Bollinger Canyon Road, San Ramon, California 94583 (US).

(72) Inventors: **TANAKA, Isao**; Atago Green Hills Mori Tower 18F, 2-5-1 Atago Minato-Ku, Tokyo, 105-6218 (JP). **MILLER, John Robert**; 6001 Bollinger Canyon Road, San Ramon, California 94583 (US).

(74) Agent: **PIO, Michael Sungjoon** et al.; P.O. 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, 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, 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).

(54) Title: MAGNESIUM AND BORON CONTAINING LUBRICATING OIL COMPOSITION FOR HYBRID VEHICLES

(57) Abstract: Disclosed is a method for maintaining emulsion stability in a hybrid engine. The method involves lubricating and operating the hybrid engine with a lubricating oil composition having a major amount of an oil of lubricating viscosity; minor amount of a magnesium containing detergent; and a minor amount of a borated dispersant.

WO 2022/018624 A1