

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
24 October 2024 (24.10.2024)



(10) International Publication Number
WO 2024/220396 A1

(51) International Patent Classification:

C10M 133/56 (2006.01) *C10N 30/00* (2006.01)
C10N 20/02 (2006.01) *C10N 40/02* (2006.01)
C10N 20/04 (2006.01) *C10N 60/14* (2006.01)
C10N 30/06 (2006.01)

(21) International Application Number:

PCT/US2024/024740

(22) International Filing Date:

16 April 2024 (16.04.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/459,881 17 April 2023 (17.04.2023) US

(71) Applicant: CHEVRON ORONITE COMPANY LLC

[US/US]; 6001 Bollinger Canyon Road, San Ramon, California 94583 (US).

(72) Inventors: RUHE JR, William Raymond; 6001 Bollinger

Canyon Road, San Ramon, California 94583 (US). FUCHI, Masami; Atago Green Hills Mori Tower 18F, 2-5-1 Atago Minato-Ku, TOKYO, 105-6218 (JP). NAKAGAWA, Takahiro; Atago Green Hills Mori Tower 18F, 2-5-1 Atago Minato-Ku, TOKYO, 105-6218 (JP). KUBO, Koichi; Atago Green Hills Mori Tower 18F, 2-5-1 Atago Minato-Ku, TOKYO, 105-6218 (JP). SAWAIRI, Ryota; Atago Green Hills Mori Tower 18F, 2-5-1 Atago Minato-Ku, TOKYO, 105-6218 (JP). SHIMIZU, Seiya; Atago Green Hills Mori Tower 18F, 2-5-1 Atago Minato-Ku, TOKYO, 105-6218

(JP). MINAMI, Ataru; Atago Green Hills Mori Tower 18F, 2-5-1 Atago Minato-Ku, TOKYO, 105-6218 (JP). OHTA, Satoshi; Atago Green Hills Mori Tower 18F, 2-5-1 Atago Minato-Ku, TOKYO, 105-6218 (JP).

(74) Agent: PIO, Michael Sungjoon et al.; Chevron Corporation, P.O. Box 6006, San Ramon, California 94583-0806 (US).

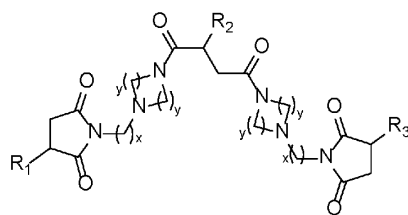
(81) Designated States (unless otherwise indicated, for every

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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, 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, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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, ME, 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: FRICTION MODIFIER FOR WET CLUTCH



(I)

(57) Abstract: A lubricating oil composition is disclosed. The composition includes a major amount of an oil of lubricating viscosity and one or more dispersant friction modifiers given by Structure A, (I). R_1 and R_3 are independently a linear or branched-chain monovalent hydrocarbyl radical of 4 to 100 carbon atoms; x is from 1 to 3; and y is from 1 to 3; R_2 is a linear or branched-chain monovalent hydrocarbyl radical of 4 to 100 carbon atoms or hydrogen; and at least one of R_1 , R_2 , and R_3 is a polyisobutenyl group having a molecular weight of 500 or greater.

[Continued on next page]

Declarations under Rule 4.17:

- *as to the identity of the inventor (Rule 4.17(i))*
- *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))*