

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
31 March 2022 (31.03.2022)



(10) International Publication Number
WO 2022/066721 A1

(51) International Patent Classification:

C10M 169/04 (2006.01) *C10N 30/06* (2006.01)
C10M 141/10 (2006.01) *C10N 30/00* (2006.01)
C10N 10/04 (2006.01) *C10N 40/25* (2006.01)
C10N 20/04 (2006.01)

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).

(21) International Application Number:

PCT/US2021/051489

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- of inventorship (Rule 4.17(iv))

(22) International Filing Date:

22 September 2021 (22.09.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/081,407 22 September 2020 (22.09.2020) US

Published:

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

(71) Applicant: THE LUBRIZOL CORPORATION

[US/US]; 29400 Lakeland Boulevard, Wickliffe, Ohio 44092-2298 (US).

(72) Inventors: GALIC RAGUZ, Mary; 29400 Lakeland

Blvd., Wickliffe, Ohio 44092-2298 (US). DEREVJANIK, Thomas; 7576 Sweet Hollow Drive, Mentor, Ohio 44060 (US). MAYHEW, Alexandra; P.O. Box 88, Belper Derbyshire DE56 1QN (GB). LOOP, John G.; 29400 Lakeland Blvd., Wickliffe, Ohio 44092-2298 (US). VINCENT, Paul R.; P.O. Box 88, Belper Derbyshire DE56 1QN (GB). GUO, Binbin; 29400 Lakeland Blvd., Wickliffe, Ohio 44092-2298 (US).

(74) Agent: MILLER, Michael A. et al.; The Lubrizol Corporation, 29400 Lakeland Boulevard, Legal Department, MD022B, Wickliffe, Ohio 44092-2298 (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,

(54) Title: DIESEL ENGINE LUBRICATING COMPOSITIONS AND METHODS OF USE THEREOF

(57) Abstract: The instant disclosure provides for diesel engine lubricating compositions and methods of lubricating a diesel engine by supplying the engine with a lubricating composition as disclosed herein. The lubricating compositions disclosed herein include a total sulfated ash of between 0.3 to 1.1 wt. %; a kinematic viscosity at 100°C of less than 8.3 cSt; a total alkaline earth metal soap of from 0.6 wt % to 2.1 wt %, and a HTHS measured according to ASTM D4683 of less than 2.7 mPa·s. The lubricating compositions may be used in diesel engines and, in particular, heavy-duty diesel engines to improve one or more of fuel economy and wear protection.

WO 2022/066721 A1