

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
10 October 2024 (10.10.2024)



(10) International Publication Number
WO 2024/211005 A1

(51) International Patent Classification:

C10G 9/00 (2006.01) C10G 67/04 (2006.01)
C10G 45/32 (2006.01) C10G 67/14 (2006.01)
C10G 45/44 (2006.01) C10G 69/06 (2006.01)

(21) International Application Number:

PCT/US2024/016512

(22) International Filing Date:

20 February 2024 (20.02.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/456,858 04 April 2023 (04.04.2023) US

(71) Applicant: **EXXONMOBIL TECHNOLOGY AND ENGINEERING COMPANY** [US/US]; 1545 Route 22 East, P.O. Box 900, Annandale, New Jersey 08801-0900 (US).

(72) Inventors: **ARIDI, Toufic**; 329 Mehta Court, Samia, Ontario N7S 0A1 (CA). **SINCLAIR, Darden Steve**; 4028 Woodland Meadow Drive, Spring, Texas 77386 (US).

PHILLIPS, Gaither M.; 67 S. Victoriana Circle, Spring, Texas 77389 (US). **WHEELER, Christopher J.**; 897 Lynedale Cres, Samia, Ontario N7S 3C8 (CA).

(74) Agent: **TUMEY, Corey S.**; P.O. Box 890226, Houston, Texas 77062-9998 (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,

(54) Title: AROMATIC AND POLAR COMPOUNDS REMOVAL IN LUBE FEEDSTOCKS BY COUNTER CURRENT LIQUID-LIQUID EXTRACTION USING DIHYDROLEVOGLUCOSENONE AS A SOLVENT

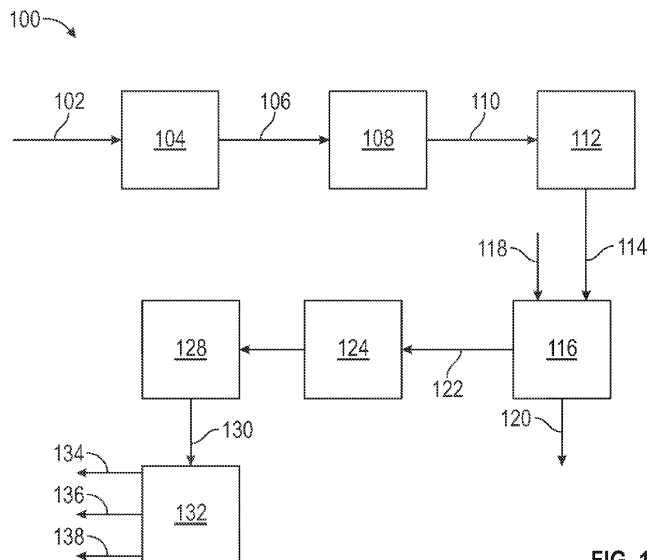


FIG. 1

(57) Abstract: A method may include: introducing a stream comprising a vacuum gas oil into a liquid-liquid extraction unit; contacting the vacuum gas oil with a dihydrolevoglucosenone solvent to extract a portion of aromatic compounds from the vacuum gas oil to produce a raffinate stream with reduced aromatic compound concentration; and dewaxing the raffinate stream to form a base stock.

[Continued on next page]

WO 2024/211005 A1

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).

Published:

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