

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
20 July 2023 (20.07.2023)



(10) International Publication Number
WO 2023/134974 A1

(51) International Patent Classification:

C10G 3/00 (2006.01) C10G 1/00 (2006.01)
C10G 65/02 (2006.01) C10B 53/02 (2006.01)
C07C 29/132 (2006.01)

(21) International Application Number:

PCT/EP2022/086864

(22) International Filing Date:

20 December 2022 (20.12.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

22151138.9 12 January 2022 (12.01.2022) EP

(71) Applicant: TOPSOE A/S [DK/DK]; Haldor Topsøes Allé
1, 2800 Kgs. Lyngby (DK).

(72) Inventor: ANDERSEN, Stefan; Lejrvej 149, 3500 Værløse (DK).

(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, 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, SD, SL, ST, SZ,

(54) Title: PROCESS FOR HYDROTREATING A LIQUID OIL FEEDSTOCK

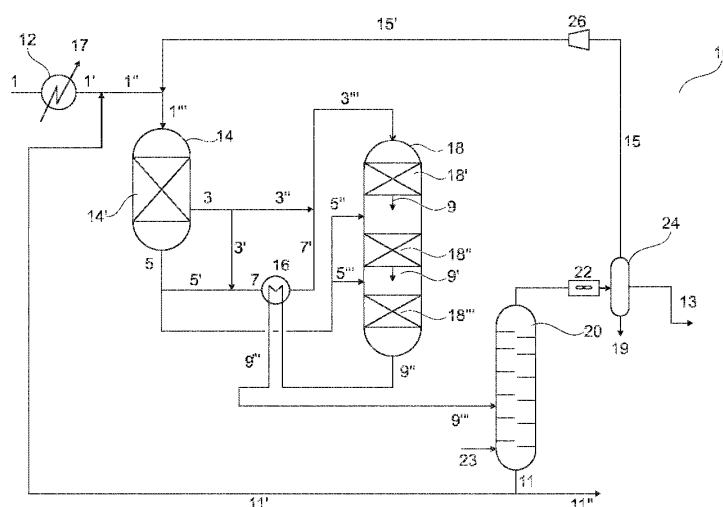


Fig.

(57) Abstract: Process and plant for hydrotreating a liquid oil feedstock stream comprising the steps of i) conducting the liquid oil feedstock stream to a stabilization step by reacting the liquid oil stream with hydrogen in the presence of a catalyst for producing a stabilized composition, and separating therefrom: a stabilized stream comprising a gas phase, and a stabilized liquid oil stream; ii) providing a main hydrodeoxygenation (HDO) step, comprising: ii-1 conducting at least a portion of said stabilized stream comprising a gas phase, or a stabilized feed stream combining at least a portion of said stabilized stream comprising a gas phase and a portion of said stabilized liquid oil stream, to a main hydrodeoxygenation (HDO) step in a first bed active in hydrodeoxygenation (HDO), thereby producing a first main hydrotreated effluent stream; ii-2 combining at least a portion of said stabilized liquid oil stream with said first main hydrotreated effluent stream, thereby producing a first mixed stabilized gas-liquid oil stream; ii-3 conducting said first mixed

[Continued on next page]

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).

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))*
- *of inventorship (Rule 4.17(iv))*

Published:

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

stabilized gas-liquid oil stream to a subsequent bed active in HDO, thereby producing a main hydrotreated effluent stream.