

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
17 December 2020 (17.12.2020)



(10) International Publication Number
WO 2020/252007 A1

(51) International Patent Classification:

C07C 41/06 (2006.01) C07C 11/02 (2006.01)
C07C 43/04 (2006.01) C10G 50/00 (2006.01)
C07C 2/28 (2006.01)

(21) International Application Number:

PCT/US2020/036977

(22) International Filing Date:

10 June 2020 (10.06.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/860,580 12 June 2019 (12.06.2019) US
19206401.2 31 October 2019 (31.10.2019) EP

(71) Applicant: **EXXONMOBIL CHEMICAL PATENTS INC.** [US/US]; 5200 Bayway Drive, Baytown, TX 77520 (US).

(72) Inventors: **SMITH, Rodney, S.**; 23 Queensferry Road, Edinburgh, Midlothian EH43HB (GB). **JINDAL, Roshni**; #16-28, Block 2C, The Lakeshore, 31 Jurong West Street 41, Singapore 649412 (SG). **HIETPAS, Julie, D.**; 6 Rue Jules Masurier, 76600 Le Havre (FR).

(74) Agent: **HUGHES, Gerard, J.** et al.; Exxonmobil Chemical Company, Law Technology P. O. Box 2149, Baytown, TX 77522-2149 (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, JO, JP, KE, KG, KH, KN, KP,

(54) Title: PROCESSES AND SYSTEMS FOR C₃₊ MONOOLEFIN CONVERSION

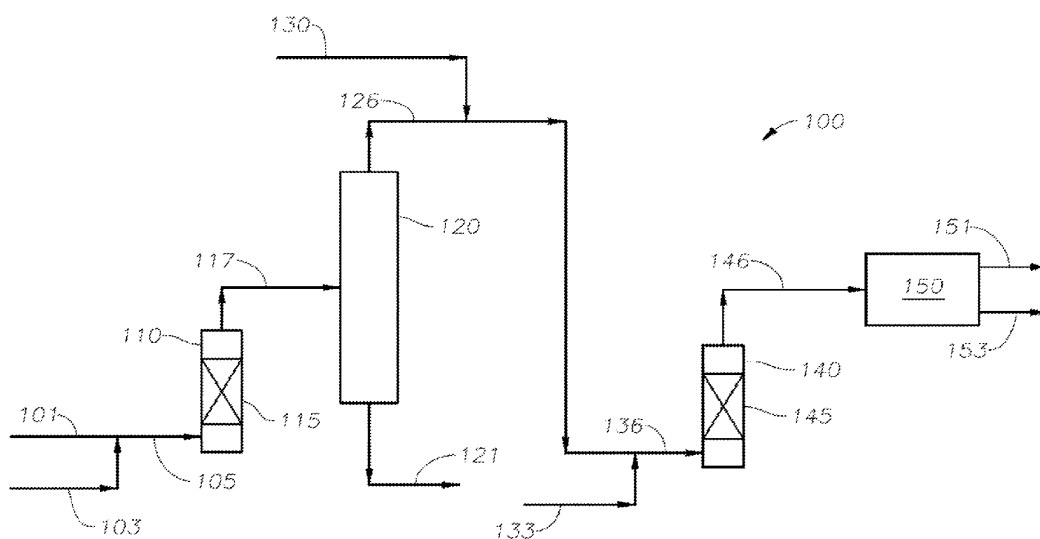


FIG. 1

(57) Abstract: Processes and systems for C₃₊ monoolefin conversion. In some examples, the process can include reacting a first mixture that includes C₃₊ monoolefins and a first oxygenate to produce a first effluent that includes a first ether and < 1 wt. % of any first di-C₃₊olefin. A first product that includes the first ether and a first byproduct that includes at least a portion of any first di-C₃₊ olefin and unreacted C₃₊ monoolefins can be separated from the first effluent. A second olefin mixture, at least a portion of the first byproduct, and a second oxygenate can be combined to produce a second mixture. The second mixture can be reacted to produce a second effluent that includes a second ether and a second di-C₃₊ olefin. The reaction of the second mixture can produce a greater amount, on a mole basis, of the second di-C₃₊ olefin than the second ether.

[Continued on next page]

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).

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))*

Published:

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