

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
06 May 2021 (06.05.2021)



(10) International Publication Number
WO 2021/086509 A1

(51) International Patent Classification:

C10G 9/36 (2006.01) C10G 47/00 (2006.01)
C10G 9/16 (2006.01) C10G 75/00 (2006.01)
C10G 69/06 (2006.01)

(21) International Application Number:

PCT/US2020/051090

(22) International Filing Date:

16 September 2020 (16.09.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/929,326 01 November 2019 (01.11.2019) US
20151752.1 14 January 2020 (14.01.2020) EP

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

(72) Inventors: **KOC-KARABOCEK, Reyhan**; 14407 Eastern Redbud Lane, Houston, TX 77044 (US). **LATTNER, James, R.**; 10 Bay Oaks, La Porte, TX 77571 (US). **ASLANER, William, A.**; 2936 Port Rose Lane, League City, TX 77573 (US). **SPICER, David**; 5319 Del Monte Drive, Houston, TX 77056 (US). **ROONEY, Mark, A.**; 7006 Trimstone Drive, Pasadena, TX 77505 (US).

(74) Agent: **CHEN, Siwen** 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,

(54) Title: PROCESSES AND SYSTEMS FOR QUENCHING PYROLYSIS EFFLUENTS

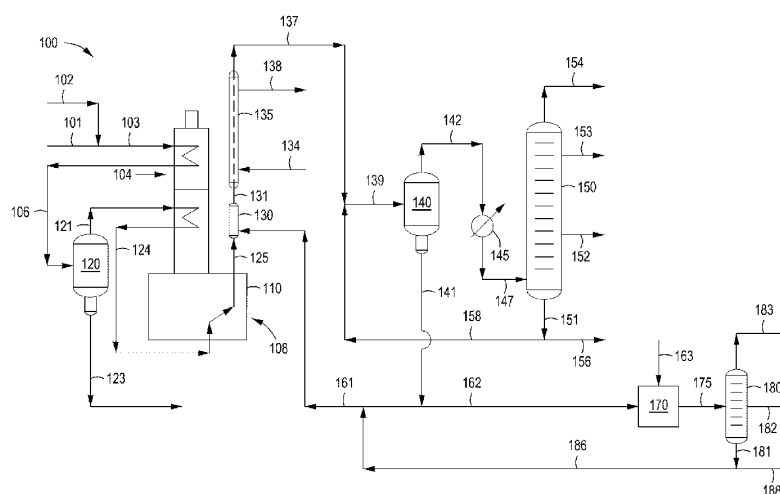


FIG. 1

(57) Abstract: Processes and systems for quenching an effluent. In certain embodiments, the process can include contacting a pyrolysis effluent and a first quench medium to produce a first quenched effluent. A bottoms stream that can include tar and an overhead stream that can include ethylene and propylene can be obtained from the first quenched effluent. The first quench medium can include a first portion of the bottoms stream that can include a first portion of the tar. In certain embodiments, the process can also include hydroprocessing a second portion of the bottoms stream that can include a second portion of the tar to produce a hydroprocessed product. A hydroprocessed bottoms stream can be obtained from the hydroprocessed product. In certain embodiments, the process can also include contacting at least a portion of the hydroprocessed bottoms stream and the first portion of the bottoms stream to produce the first quench medium.

[Continued on next page]

WO 2021/086509 A1

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, 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))*