

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
20 April 2023 (20.04.2023)



(10) International Publication Number
WO 2023/062165 A1

(51) International Patent Classification:

C10G 9/24 (2006.01) C10G 9/00 (2006.01)
C10G 9/36 (2006.01)

Published:

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

(21) International Application Number:

PCT/EP2022/078585

(22) International Filing Date:

13 October 2022 (13.10.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

21290066,6 14 October 2021 (14.10.2021) EP

(71) Applicant: **TECHNIP ENERGIES FRANCE SAS**

[FR/FR]; 2126 Boulevard de La Défense, Immeuble Origine, Cs 10266, 92741 NANTERRE CEDEX (FR).

(72) Inventor: **ODU, Peter**; Raminhout 16, 2719 KN Zoetermeer (NL).

(74) Agent: **WITMANS, H.A.**; V.O., P.O. Box 87930, 2508 DH Den Haag (NL).

(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, 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, 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).

WO 2023/062165 A1

(54) Title: ETHYLENE PLANT, COMPRISING AN ELECTRICALLY-POWERED PYROLYSIS REACTOR AND A FEED-EFFLUENT HEAT EXCHANGER

(57) Abstract: The present disclosure concerns an ethylene plant comprising an electrically- powered pyrolysis reactor and a process for producing a pyrolysis reactor effluent using the ethylene plant. The pyrolysis reactor comprises a feed inlet for a hydrocarbon feedstock-diluent mixture and an outlet for a pyrolysis reactor effluent comprising ethylene. The plant further comprises a heat exchanger (90) configured to transfer heat from the pyrolysis reactor effluent to the feed for the pyrolysis reactor. The heat exchanger (90) comprises a feed inlet and a feed outlet upstream of the pyrolysis reactor, and further a pyrolysis reactor effluent inlet and a pyrolysis reactor effluent outlet. A feed passage way is present between the feed outlet of the heat exchanger and the feed inlet of the pyrolysis reactor and further a feed passage way is present between the reactor effluent outlet of the pyrolysis reactor and the cracked gas inlet of the heat exchanger.