



(51) International Patent Classification:

C07C 5/333 (2006.01) C07C 11/06 (2006.01)

(21) International Application Number:

PCT/US2021/016190

(22) International Filing Date:

02 February 2021 (02.02.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/986,229	06 March 2020 (06.03.2020)	US
20179508.5	11 June 2020 (11.06.2020)	EP

(71) Applicant: **EXXONMOBIL CHEMICAL PATENTS INC.** [US/US]; 5200 Bayway Drive, Baytown, TX 77520 (US).(72) Inventor: **BAO, Xiaoying**; 4239 Albans, Houston, TX 77005 (US).(74) Agent: **CHEN, Siwen** et al.; ExxonMobil Chemical Company, Law Department, 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, 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))

(54) Title: PROCESSES FOR UPGRADING ALKANES AND ALKYL AROMATIC HYDROCARBONS

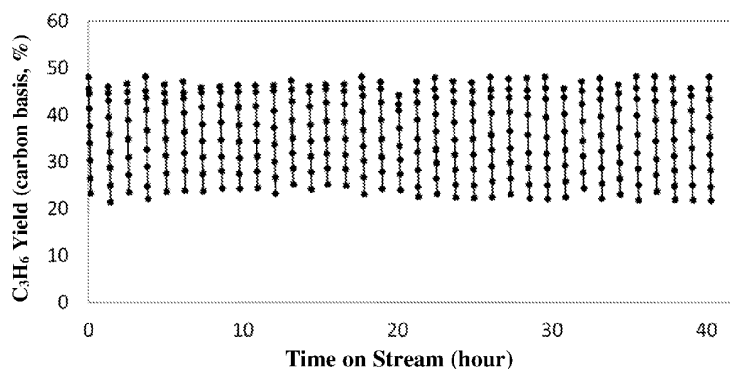


FIG. 1

(57) **Abstract:** Processes for upgrading a hydrocarbon. The process can include (I) contacting a hydrocarbon-containing feed with a catalyst that can include a Group 8-10 element or a compound thereof disposed on a support to effect one or more of dehydrogenation, dehydroaromatization, and dehydrocyclization of at least a portion of the hydrocarbon-containing feed to produce a coked catalyst and an effluent. The process can also include (II) contacting at least a portion of the coked catalyst with an oxidant to effect combustion of at least a portion of the coke to produce a regenerated catalyst. The process can also include (III) contacting an additional quantity of the hydrocarbon-containing feed with at least a portion of the regenerated catalyst. A cycle time from the contacting the hydrocarbon-containing feed with the catalyst in step (I) to the contacting the additional hydrocarbon-containing feed with the regenerated catalyst in step (III) can be < 5 hours.

[Continued on next page]

Published:

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