

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

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
17 February 2022 (17.02.2022)



(10) International Publication Number
WO 2022/035585 A1

(51) International Patent Classification:

C08F 210/02 (2006.01) C08F 4/659 (2006.01)
C08F 210/06 (2006.01) C08F 232/08 (2006.01)
C08F 232/04 (2006.01)

(21) International Application Number:

PCT/US2021/043331

(22) International Filing Date:

27 July 2021 (27.07.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/065,344 13 August 2020 (13.08.2020) US

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

(72) Inventors: **CANICH, Jo Ann M.**; 15710 Mesa Verde Drive, Houston, TX 77059 (US). **LAMBIC, Nikola S.**; 111 East 2nd Street, Houston, TX 77007 (US). **CULCU, Gursu**; 15710 Cairnwell Bend Drive, Humble, TX 77346 (US). **JIANG, Peijun**; 2603 Mist Flower Court, Katy, TX 77494 (US). **HAAGADORN, John R.**; 4838 Knickerbocker Street, Houston, TX 77035 (US). **MATTLER, Sarah J.**; 605 Brunswick Drive, League City, TX 77573 (US).

(74) Agent: **WRKICH, Joseph E.** 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, 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).

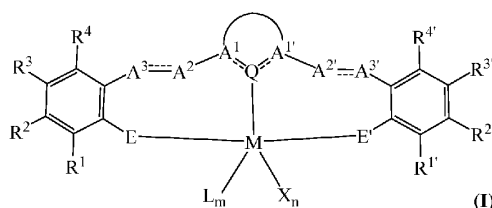
Declarations under Rule 4.17:

- 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))

(54) Title: CYCLIC CONTAINING POLYMER COMPOSITIONS OBTAINED USING TRANSITION METAL BIS(PHENOLATE) CATALYST COMPLEXES AND PROCESS FOR PRODUCTION THEREOF



(57) Abstract: This invention relates to a process to produce cyclic olefin containing polymer compositions using transition metal complexes of a dianionic, tridentate ligand that features a central neutral heterocyclic Lewis base and two phenolate donors, where the tridentate ligand coordinates to the metal center to form two eight-membered rings. Preferably the bis(phenolate) complexes are represented by Formula (I): (I) where M, L, X, m, n, E, E', Q, R¹, R², R³, R⁴, R^{1'}, R^{2'}, R^{3'}, R^{4'}, A¹, A^{1'}, A³—A², and A^{2'}—A^{3'} are as defined herein, where A¹QA^{1'} are part of a heterocyclic Lewis base containing 4 to 40 non-hydrogen atoms that links A² to A^{2'} via a 3-atom bridge with Q being the central atom of the 3-atom bridge.



WO 2022/035585 A1