

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

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
18 August 2022 (18.08.2022)



(10) International Publication Number
WO 2022/173729 A1

(51) International Patent Classification:

C07F 17/00 (2006.01) C08F 210/16 (2006.01)

C08F 4/6592 (2006.01)

(21) International Application Number:

PCT/US2022/015602

(22) International Filing Date:

08 February 2022 (08.02.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/147,490 09 February 2021 (09.02.2021) US

(71) Applicant: DOW GLOBAL TECHNOLOGIES LLC

[US/US]; 2211 H.H. Dow Way, Midland, Michigan 48674 (US).

(72) Inventors: PADILLA-ACEVEDO, Angela I.; 230 Abner

Jackson Parkway, Lake Jackson, Texas 77566 (US). BAIL-LIE, Rhett A.; 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). KUHLMAN, Roger L.; 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). MCDUGAL, Mahsa; 2301 North Brazosport Boulevard, B-1811, Freeport, Texas 77541 (US). BRENNAN, Tamar L.; 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). PEARSON, David M.; 230 Abner Jackson Parkway, Lake Jackson, Texas 77566 (US). WHITE-ED, Stephanie M.; 1840 Union Carbide Drive, South Charleston, West Virginia 25303 (US).

(74) Agent: HAGEN, Robert J.; 1201 Marquette Avenue

South, Suite 400, Minneapolis, Minnesota 55403 (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).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(54) Title: BICYCLIC HAFNIUM METALLOCENES HAVING NONIDENTICAL LIGANDS

(57) Abstract: Embodiments of the present disclosure are directed towards bicyclic hafnium metallocenes having non-identical ligands and compositions including the bicyclic hafnium metallocenes having non-identical ligands. The bicyclic hafnium metallocene having non-identical ligands is represented by formula (I): ABMX₂, where: A is a bicyclic structure; and B is a cyclopentadienyl; M is hafnium; and X is a leaving group, wherein the bicyclic structure comprises a ((C1-C6)alkyl)n-substituted Cp ring and a non-aromatic cyclic structure fused with the ((C1-C6)alkyl)n-substituted Cp ring such that the bicyclic structure includes 7 to 9 ring carbon atoms and wherein subscript n is 1, 2, or 3.

WO 2022/173729 A1