



(43) International Publication Date
24 July 2014 (24.07.2014)

(10) International Publication Number
WO 2014/113046 A1

(51) International Patent Classification:

C08F 210/06 (2006.01) C08F 210/18 (2006.01)
C08F 210/16 (2006.01)

(21) International Application Number:

PCT/US2013/031127

(22) International Filing Date:

14 March 2013 (14.03.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/753,962 18 January 2013 (18.01.2013) US

(71) Applicant: **DOW GLOBAL TECHNOLOGIES LLC**
[US/US]; 2040 Dow Center, Midland, MI 48674 (US).

(72) Inventors: **SPENCER, Liam, P.**; 2602 Joshua Tree Lane,
Manvel, TX 77578 (US). **KIRSCHNER, Jennifer M.**;
128, Otter Trail, Lake Jackson, TX 77566 (US).

(74) Agent: **TERRY, Jane**; The Dow Chemical Company, P.O.
Box 1967, Midland, MI 48641-1967 (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, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, 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, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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, 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,
ML, MR, NE, SN, TD, TG).

Published:

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

(54) Title: POLYMERIZATION PROCESSES FOR HIGH MOLECULAR WEIGHT POLYOLEFINS

(57) Abstract: A process for polymerizing ethylene in the presence of a metal complex of Structure I, as described herein, which comprises a metal selected from one of Groups 3-6, which is bonded to aryl groups via oxygen and two Z groups. The aryl groups comprise substituents R1a, R1aa, through R15a, R15aa, which are selected from hydrogen, halo, hydrocarbyl, trihydrocarbylsilyl, trihydrocarbylsilylhydrocarbyl, -O(R), -N(R'R''), -S(R'''), or -P(R^{IV}R^V); and each R, R', R'', R''', R^{IV} and R^V is described herein. Two X groups are also bonded to the metal, and each is halo, hydrocarbyl, or trihydrocarbylsilyl group. Each Z is O, S, N(C1-C40)hydrocarbyl, or P(C1-C40)hydrocarbyl. Groups Y and L form part of a bridge between the Z groups. Y is halo, hydrocarbyl, trihydrocarbylsilyl, trihydrocarbylsilylhydrocarbyl, -O(R^{VI}), -N(R^{VII}R^{VIII}), -S(R^{IX}), or -P(R^XR^{XI}); and each R^{VI}, R^{VII}, R^{VIII}, R^{IX}, R^X and R^{XI} is described herein. L is (C1-C40)hydrocarbylene or (C1-C40)heterohydrocarbylene. The invention also provides Structure I.



WO 2014/113046 A1