

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

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
1 September 2011 (01.09.2011)

PCT

(10) International Publication Number
WO 2011/106500 A1

(51) International Patent Classification:
C08F 10/06 (2006.01) *C08F 4/654* (2006.01)
C08F 4/651 (2006.01)

(74) Agent: **BARTHEL, Ted, J.**; Whyte Hirschboeck Dudek S.c., 555 E. Wells Street, Suite 1900, Milwaukee, WI 53202 (US).

(21) International Application Number:
PCT/US2011/026036

(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, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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.

(22) International Filing Date:
24 February 2011 (24.02.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/308,543 26 February 2010 (26.02.2010) US

(71) Applicants (*for all designated States except US*): **DOW GLOBAL TECHNOLOGIES LLC** [US/US]; 2040 Dow Center, Midland, MI 48674 (US). **SHU, James, X.** (legal representative of the deceased inventor) [US/US]; Legal Representative Of Huang Xiaodong (deceased), 11110 Bellare Blvd., Suite 231, Houston, TX 77072 (US).

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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).

(72) Inventor: **HUANG, Xiaodong** (*deceased*).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **CHEN, Linfeng** [US/US]; 4015 Tuscan Shores Drive, Missouri City, TX 77459 (US). **WILLIAMS, Clark, C.** [US/US]; 21403 Willowford Park Drive, Katy, TX 77450 (US). **LEUNG, Tak, W.** [US/US]; 3823 Canary Grass Lane, Houston, TX 77059 (US). **TAO, Tao** [CN/US]; 1721 Potomac Drive C., Houston, TX 77057 (US). **GAO, Kuanqiang** [CN/US]; 3205 Princess Bat Court, Pearland, TX 77584 (US).

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: AMIDE ESTER INTERNAL ELECTRON AND PROCESS

(57) Abstract: Disclosed is a process for producing a procatalyst composition having an amide ester internal electron donor. The process includes pre-halogenating a procatalyst precursor before reaction with the amide ester and forming the procatalyst composition. Ziegler-Natta catalyst compositions containing the present procatalyst composition exhibit improved catalyst activity and/or improved catalyst selectivity and produce propylene-based olefins with broad molecular weight distribution.



WO 2011/106500 A1