

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
23 December 2009 (23.12.2009)

PCT

(10) International Publication Number
WO 2009/155472 A8

(51) International Patent Classification:

C08F 210/02 (2006.01) C08F 10/06 (2006.01)
C08F 210/06 (2006.01) C08F 4/64 (2006.01)

(74) Agents: BELL, Catherine, L. et al.; ExxonMobil Chemical Company, Law Technology, P O Box 2149, Baytown, TX 77522-2149 (US).

(21) International Application Number:

PCT/US2009/047882

(22) International Filing Date:

19 June 2009 (19.06.2009)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/143,663 20 June 2008 (20.06.2008) US

(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:

US 12/143,663 (CIP)
Filed on 20 June 2008 (20.06.2008)

(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, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US):
EXXONMOBIL CHEMICAL PATENTS INC.
[US/US]; 5200 Bayway Drive, Baytown, TX 77520-2101 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BRANT, Patrick [US/US]; 1038 Shorewood Drive, Seabrook, TX 77586 (US). CROWTHER, Donna, J. [US/US]; 2725 Moss Court, Seabrook, TX 77586 (US).

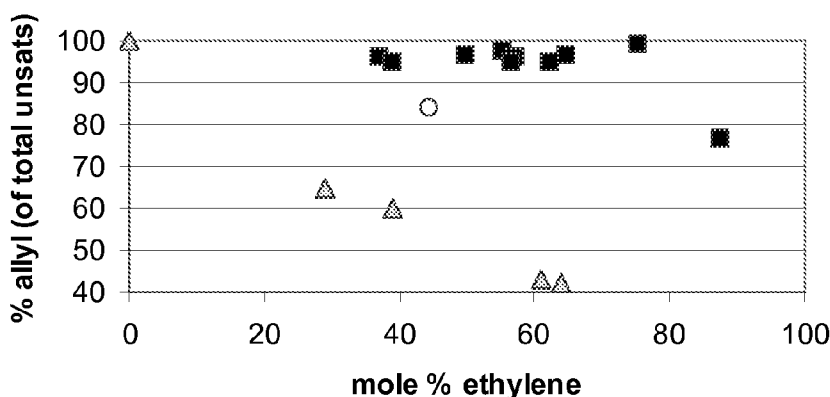
Declarations under Rule 4.17:

- 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))

[Continued on next page]

(54) Title: FUNCTIONALIZED HIGH VINYL TERMINATED PROPYLENE BASED OLIGOMERS

Figure 1



(57) Abstract: This invention relates to a functionalized co-oligomer having an Mn of 300 to 30,000 g/mol comprising 10 to 90 mol% propylene and 10 to 90 mol% of ethylene, wherein the oligomer has at least X% allyl chain ends, where: 1) $X = (-0.94 (\text{mol \% ethylene incorporated}) + 100)$, when 10 to 60 mol% ethylene is present in the co-oligomer, and 2) $X = 45$, when greater than 60 and less than 70 mol% ethylene is present in the co-oligomer, and 3) $X = (1.83 * (\text{mol \% ethylene incorporated}) - 83)$, when 70 to 90 mol% ethylene is present in the co-oligomer. This invention also relates to a functionalized homo-oligomer, comprising propylene, wherein the oligomer has: at least 93% allyl chain ends, an Mn of about 500 to about 20,000 g/mol, an isobutyl chain end to allylic vinyl group ratio of 0.8: 1 to 1.2: 1.0, and less than 100 ppm aluminum. This invention also relates to a process of making functionalized homo-or co-oligomer, comprising propylene, wherein the productivity is greater than 4500 g/mmol Hf (or Zr)/hour.



Published:

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

(48) Date of publication of this corrected version:

10 February 2011

(88) Date of publication of the international search report:
22 July 2010

(15) Information about Correction:
see Notice of 10 February 2011