



(51) International Patent Classification:
C08F 10/06 (2006.01)

(21) International Application Number:
PCT/US2014/067703

(22) International Filing Date:
26 November 2014 (26.11.2014)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/909,461 27 November 2013 (27.11.2013) US

(71) Applicant: **W. R. GRACE & CO.-CONN** [US/US]; 7500
Grace Dr., Columbia, MD 21044 (US).

(72) Inventor: **VAN EGMOND, Jan W.**; 119 Graff Lane,
Charleston, WV 25304 (US).

(74) Agents: **ADRIAN, Stephen** et al.; Westerman, Hattori,
Daniels & Adrian, LLP, 1250 Connecticut Avenue, NW,
Suite 700, Washington, District of Columbia 20036 (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, IR, IS, JP, KE, KG, KN, KP, KR,
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, 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, 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 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: PROCATALYST PARTICLES AND POLYMERIZATION PROCESS FOR IMPACT COPOLYMERS

(57) Abstract: Particles of a procatalyst composition having a particle size D50 from 19 microns to 30 microns. A polymerization process comprising halogenating, in the presence of a substituted phenylene aromatic diester, particles of a MagTi procatalyst precursor to form particles of a procatalyst composition having a particle size D50 from 19 microns to 30 microns; first contacting a propylene and optionally one or more first comonomers with a catalyst composition comprising the particles of the procatalyst composition in a first polymerization reactor to form an active propylene-based polymer; and second contacting the active propylene-based polymer with at least one second comonomer in a second polymerization reactor to form a propylene impact copolymer.

