



(51) International Patent Classification:

C08F 8/00 (2006.01) *C08F 8/30* (2006.01)
C08F 10/02 (2006.01) *C08K 5/3435* (2006.01)
C08K 5/32 (2006.01) *C08F 210/16* (2006.01)
C08L 23/26 (2006.01) *C08F 110/02* (2006.01)
C08L 23/04 (2006.01) *C08J 3/22* (2006.01)
C08J 5/18 (2006.01)

(21) International Application Number:

PCT/US2011/020853

(22) International Filing Date:

11 January 2011 (11.01.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/685,148 11 January 2010 (11.01.2010) US

(71) Applicants (for all designated States except US): **DOW**

GLOBAL TECHNOLOGIES LLC [US/US]; 2040 Dow Center, Midland, MI 48674 (US). **DOW BRAZIL S.A.** [BR/BR]; Avenida das Nacoes Unidas, 14171 Santo Amaro, Cep. 04794-000 Sao Paulo - Sp (BR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DEMIRORS, Mehmet** [NL/US]; 2319 Bending Spring Drive, Pearland, TX 77584 (US). **KARJALA, Teresa** [US/US]; 56 Mandevilla Court, Lake Jackson, TX 77566 (US). **MAZZOLA, Nicolas** [BR/BR]; Rua Aurora Germano de Lemos 333 Ap94, 13209460 Jundiai (BR).

(74) Agent: **HOPPE, James**; Dow Global Technologies LLC, 2040 Dow Center, Midland, MI 48674 (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, 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.

(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).

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: HIGH MELT STRENGTH POLYETHYLENE COMPOSITIONS AND METHODS FOR MAKING THE SAME

(57) Abstract: The present invention is a method for increasing the melt strength of a polyethylene resin comprising reacting the polyethylene resin with a free radical generator with a decomposition energy in between -50 kJoule/mole and -250 kJoules/mole and a peak decomposition temperature of less than 280 degree C. The resulting resin has increased melt strength with higher ratio of elongational viscosities at 0.1 to 100 rad/s when compared to substantially similar polyethylene resins which have not been reacted with a free radical generator such as an alkoxy amine derivative.

