



(51) International Patent Classification:

C08F 236/10 (2006.01) **C08F 4/48** (2006.01)
C08F 212/08 (2006.01)

(21) International Application Number:

PCT/EP2011/059918

(22) International Filing Date:

15 June 2011 (15.06.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/354,951 15 June 2010 (15.06.2010) US

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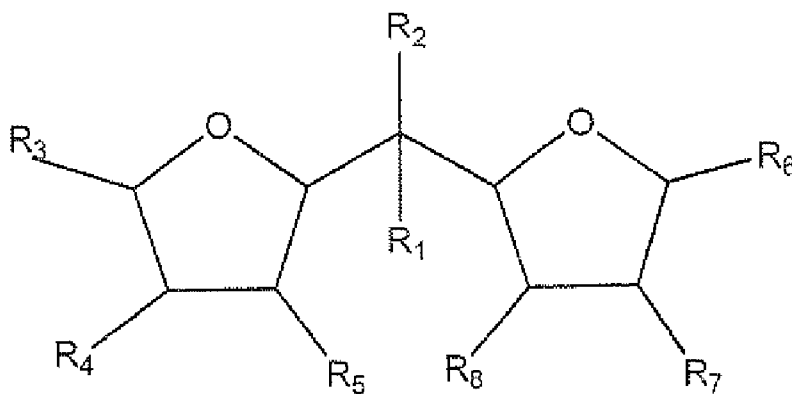
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, 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))

(54) Title: LOW VINYL STYRENE-BUTADIENE POLYMERS AND METHODS OF MAKING THE SAME



Formula 1

(57) Abstract: The invention provides a process for the continuous polymerization of a polymer comprising monomeric units derived from styrene and 1,3-butadiene, said process comprising: polymerizing the monomers in the presence of an initiator, and at least one polar agent selected from Formula 1; wherein R1 and R2 are each independently an alkyl, and preferably a C1-C4 alkyl; R3, R4, R5, R6, R7 and R8 are each independently selected from hydrogen or an alkyl, and preferably hydrogen or a C1-C4 alkyl; and wherein a 1,2-diene is added to the polymerization, and the 1,2-diene to active initiator (active for polymerization) molar ratio is from 0.1 to 1.0, preferably from 0.1 to 0.9, and more preferably from 0.1 to 0.85; and wherein the polar agent to the active initiator molar ratio is from 0.05 to 0.6, preferably from 0.1 to 0.5, more preferably from 0.15 to 0.3. The invention also provides a composition comprising a polymer comprising monomeric units derived from styrene and 1,3-butadiene, and wherein the polymer has at least the following characteristics: A) vinyl content from 12 to 40 weight percent, based on the weight of polymerized butadiene in the polymer, B) block styrene content less than 8 weight percent, based on the weight of styrene in the polymer, and C) a styrene content from 10 to 50 weight percent, based on the weight of the polymer.