



(43) International Publication Date
3 January 2013 (03.01.2013)

(10) International Publication Number
WO 2013/000817 A1

- (51) **International Patent Classification:**
C08C 19/44 (2006.01) *C08F 236/10* (2006.01)
- (21) **International Application Number:**
PCT/EP2012/061981
- (22) **International Filing Date:**
21 June 2012 (21.06.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
MI2011A001198 29 June 2011 (29.06.2011) IT
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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, QA, RO, RS, RU, RW, 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, 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, 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:** PROCESS FOR THE PREPARATION OF 1,3-BUTADIENE AND STYRENE COPOLYMERS AND USE THEREOF IN VULCANIZABLE ELASTOMERIC COMPOSITIONS

(57) **Abstract:** A process for the preparation of a 1,3-butadiene and styrene copolymer comprising the following steps: a) anionically polymerizing a blend comprising from 5% by weight to 40% by weight of styrene and from 60% by weight to 95% by weight of 1,3-butadiene, with respect to the overall weight of the mixture, in the presence of at least one hydrocarbon solvent, of at least one lithium-based catalyst having the general formula LiR_1 wherein R_1 represents a linear or branched $\text{C}_3\text{-C}_{10}$ alkyl group, and of at least one polar modifier; b) optionally, reacting the copolymer obtained in step (a) with at least one chain-end monomer selected from 1,3-butadiene, styrene and α -methylstyrene; c) reacting from 10% by weight to 70% by weight, preferably from 20% by weight to 50% by weight, of the lithium-terminated polymeric chains present in the copolymer obtained in step (a) or in step (b), with at least one coupling agent selected from liquid polyepoxides having at least three reactive sites capable of reacting with the carbon-lithium chain-ends; d) optionally, reacting the copolymer obtained in step (c) with at least one chain-end monomer selected from 1,3-butadiene, styrene and α -methylstyrene; e) reacting the linear polymeric chains remaining in the copolymer obtained in step (c) or in step (d), with at least one tin compound having the general formula $\text{XSn(R}_2)_3$ wherein X represents a halogen atom such as, for example, chlorine and R_2 represents a linear or branched $\text{C}_1\text{-C}_{10}$ alkyl group.



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