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(21) International Application Number: PCT/US98/16213 (22) International Filing Date: 5 August 1998 (05.08.98) (30) Priority Data: 60/057,582 27 August 1997 (27.08.97) US (71) Applicant (for all designated States except US): THE DOW CHEMICAL COMPANY [US/US]; 2030 Dow Center, Midland, MI 48674 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): HO, Thoi, H. [US/US]; 54 Orchid Court, Lake Jackson, TX 77566 (US). DRUM-RIGHT, Ray, B. [US/US]; 785 East Olson Road, Midland, MI 48640 (US). TERBRUEGGEN, Robert, H. [US/US]; 69 Chervil Common, Lake Jackson, TX 77566 (US). CUM-MINS, Clark, H. [US/US]; 4317 Washington Street, Midland, MI 48642 (US). MULLINS, Michael, J. [US/US]; 302 Juniper, Lake Jackson, TX 77566 (US). SILVIS, H., Craig [US/US]; 1908 Candlestick Lane, Midland, MI 48642 (US). (74) Agent: CAVENDER, Carol, J.; Patent Dept., B-1211, 2301 Brazoport Boulevard, Freeport, TX 77541 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>
(54) Title: RHEOLOGY MODIFICATION OF INTERPOLYMERS OF ALPHA-OLEFINS AND VINYL AROMATIC MONOMERS		
(57) Abstract The invention includes a process of preparing a coupled polymer comprising heating an admixture containing (1) at least one interpolymer of an alpha-olefin and vinyl aromatic monomer and (2) a coupling amount of at least one poly(sulfonyl azide) to at least the decomposition temperature of the poly(sulfonyl azide) for a period sufficient for decomposition of at least 80 weight percent of the poly(sulfonyl azide) and sufficient to result in a coupled polymer. The polymer preferably comprises ethylene, and a vinyl aromatic monomer, preferably styrene. The amount of poly(sulfonyl azide) is preferably from 0.01 to 1 weight percent of the interpolymer and the reaction preferably takes place at a temperature greater than 150 °C, more preferably 185 °C. The process optionally and in one preferred embodiment additionally comprises steps (b) fabricating an article from the coupled polymer and (c) cross-linking the fabricated coupled polymer. The invention additionally includes any composition produced by a process of the invention and any article made from the composition, preferably articles formed from a melt of the composition, more preferably by blow molding, blowing a film, foaming, or profile extruding, most preferably to form a coating for wire or cable, a tube, a gasket, a seal, roofing, or fiber. The article is optionally calendared. Additionally, the invention includes the use of compositions of the invention as starting materials for forming processes in which the composition is melted and especially in blow molding, blowing a film, foaming, or profile extruding, most preferably to form a coating for wire or cable, a tube, a gasket, a seal, roofing, or fiber.		