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(21) International Application Number: PCT/US95/14112 ✓ (22) International Filing Date: 11 October 1995 (11.10.95) ✓ (30) Priority Data: ✓ 9420645.5 ✓ 13 October 1994 (13.10.94) ✓ GB (71) Applicant (for all designated States except US): THE DOW CHEMICAL COMPANY [US/US]; 2030 Dow Center, Abbott Road, Midland, MI 48640 (US). ✓ (72) Inventors; and (75) Inventors/Applicants (for US only): DEMIRÖRS, Mehmet [TR/NL]; Langs de Kreek 25, NL-4535 CA Terneuzen (NL). SLEECKX, Jozef, Julius [BE/BE]; Driesmeers 16, B-9830 Sint-Martens-Latem (BE). VOLLENBERG, Peter, Hendrikus [NL/BE]; Vlaanderenstraat 89, B-9000 Gent (BE). VO, Chau, V. [FR/FR]; 21, rue Gutenberg, F-67460 Souffelweyersheim (FR). WELSH, Gary, C. [US/US]; 5007 Foxpoint Circle, Midland, MI 48642 (US). (74) Agent: SHEPHERD, Philip, D.; The Dow Chemical Company, Patent Dept., P.O. Box 1967, Midland, MI 48641-1967 (US).		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, (SG), SI, SK, TJ, TM, TT, UA, UG, US, UZ, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: NON-LINEAR STYRENIC POLYMER COMPOSITIONS AND ARTICLES PREPARED THEREFROM		
(57) Abstract Monovinyl aromatic polymer compositions with high melt strength, good flow and good heat properties which are suitable for fast injection molding, blow molding and thermoforming applications, comprising non-linear monovinyl aromatic polymers and copolymers having comb-type structures with 3 branches, star type structures with 4 to 6 branches, and/or dendritic structures in which the branches themselves have attached branched units. These compositions possess inherent melt strength and can be blow molded or thermoformed without sagging or molded into articles in shorter cycle times using less material than linear monovinyl aromatic polymers and copolymers with the same flow and heat distortion temperatures. Also disclosed is a process for making high molecular weight branched monovinyl aromatic polymers, for example, Mw between 75,000 and 500,000, at high rates, comprising polymerizing pure styrene monomer or styrene monomer and polymerizable comonomer via a continuous free radical polymerization process using a peroxide initiator, for example, n-butyl tert-butyl peroxy fumarate, selected from a new class of vinyl peroxide initiators that contain both a copolymerizable double bond and an organic peroxide moiety.		

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