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12/641,985 18 December 2009 (18.12.2009) US(71) Applicant (for all designated States except US): **DOW GLOBAL TECHNOLOGY LLC** [US/US]; 2040 Dow Center, Midland, MI 48674 (US).

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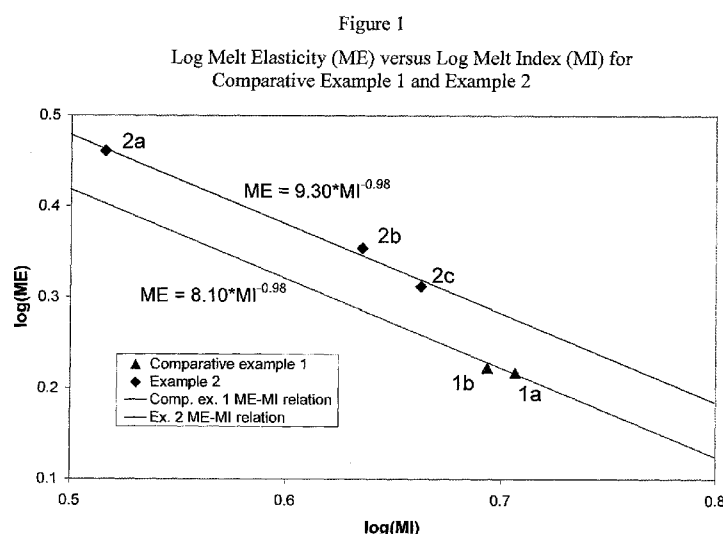
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(54) Title: POLYMERIZATION PROCESS TO MAKE LOW DENSITY POLYETHYLENE



(57) Abstract: A high pressure polymerization process to form an ethylene-based polymer comprises the steps of: A. Injecting a first feed comprising ethylene and optionally a chain transfer agent system (CTA system) into a first autoclave reactor zone operating at polymerization conditions to produce a first zone reaction product, the CTA system of the first reactor zone having a transfer activity Z1; and B. (1) Transferring at least part of the first zone reaction product to a second reactor zone selected from a second autoclave reactor zone or a tubular reactor zone and operating at polymerization conditions, and, optionally, (2) freshly injecting a second feed into the second reactor zone to produce a second zone reaction product, with the proviso that the second reactor zone contains a CTA system having a transfer activity Z2; and with the proviso that the ratio of Z1/Z2 is less than 1.