ABSTRACT

PROCESS FOR PRODUCING LOW DENSITY POLYETHYLENE COMPOSITIONS AND POLYMERS PRODUCED THEREFROM

The present invention relates to an ethylene homo or copolymer characterized as having long chain branching, and having a molecular weight distribution, Mw/Mn, and a GPC-LALLS CDF, which satisfies the following relationship: $y \geq 0.0663x - 0.015$, wherein y = GPC-LALLS CDF and x = Mw/Mn measured by conventional GPC, a line drawn from where the LS chromatogram intersects with molecular weight 350,000 and molecular weight 1,150,000 has a positive slope, preferably with a melt index between 0.15 and 2000 g/10 minutes and having long chain branching. In addition, the invention relates to a free radical initiation polymerization process for the preparation of ethylene polymers or copolymers, comprising reacting ethylene and optionally one or more comonomers at a high pressure, conveniently between 13,000 psig and 100,000 psig, and at reactor temperatures of 115 °C to 400 °C, preferably 125-400 °C, more preferably 140-350 °C, especially 165-320 °C, in a reactor system comprising at least one tubular, and at least one autoclave reactor, wherein the monomer(s) feed into the reactors is divided into multiple monomer feed streams, and wherein at least one feed stream into the tubular reactor consists essentially of unreacted monomer.

FIG. 1

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