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(54) Title: UTILIZATION OF 1-HEXENE IN MULTI-STAGE POLYOLEFIN PRODUCTION

(57) Abstract: The disclosure relates to a process for polymerising olefins in multi stage polymerisation process configuration, the process comprising a) polymerising in a first polymerisation step ethylene, optionally in the presence of at least one other alpha olefin comonomer, in the presence of a polymerisation catalyst so as to form a first polymer component (A); and b) polymerising in a second polymerisation step in gas phase a predetermined monomer mixture comprising ethylene and 1-hexene, optionally in the presence of at least one other alpha olefin comonomer, in the presence of the first polymer component (A) of step a), so as to form a second polymer component (B), wherein the multimodal polyethylene polymer produced by the present process comprises 1-hexene comonomer and at least one further C4-10-comonomer, and wherein the predetermined monomer mixture comprising ethylene and 1-hexene is fed into the second polymerisation step from the beginning of its start up. The disclosure further relates to use of 1-hexene in a gas phase olefin polymerisation step for improving performance of single-site polymerisation catalyst in multi-stage olefin copolymerisation process. The disclosure still further relates to a method for improving performance of single-site polymerisation catalyst in a multi-stage olefin polymerisation comprising feeding a predetermined monomer mixture comprising ethylene and 1-hexene into the gas phase polymerisation step from the beginning of its start up.



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