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(71) Applicant: **BOREALIS AG** [AT/AT]; Trabrennstrasse
6-8, Austria, 1020 Vienna (AT).

(72) Inventors: **CASTRO, Pascal**; Borealis Polymers Oy,
P.O. Box 330, 06101 Porvoo (FI). **KANELLOPOULOS,**
Vasileios; Borealis Polyolefine GmbH, St.-Peter-Strasse
25, 4021 Linz (AT). **SUMERIN, Victor**; Borealis Polymers
Oy, P.O. Box 330, 06101 Porvoo (FI). **AHO, Jani**; Borealis
Polymers Oy, P.O. Box 330, 06101 Porvoo (FI).

(74) Agent: **CAMPBELL, Neil**; Dehns, St Bride's House, 10
Salisbury Square, London, EC4Y 8JD (GB).

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(54) Title: PROCESS FOR POLYMERISING OLEFINS HAVING NARROW PARTICLE SIZE DISTRIBUTION

(57) Abstract: The disclosure relates to process for polymerising olefins, the process comprising polymerising ethylene, optionally in the presence of at least one other alpha olefin comonomer, preferably C4-C10 alpha olefin comonomer, preferably in a multi-stage polymerisation configuration, in the presence of a single-site polymerisation catalyst to produce a polymer component; to produce a polyethylene polymer or a polyethylene copolymer having a particle size distribution of the resulting a polyethylene polymer powder or a polyethylene copolymer powder described by a lognormal distribution having a scale parameter less than 0.5, preferably less than 0.45, in particular from 0.1 to 0.45, more preferably from 0.15 to 0.4. The disclosure further relates to a single-site polymerisation catalyst, comprising (i) a transition metal complex; (ii) a cocatalyst; and optionally (iii) a support, preferably a silica support; wherein the single-site polymerisation catalyst is characterised by a compressive strength of at least 5 MPa, preferably at least 5.5 MPa, in particular from 6 to 25 MPa, more preferably from 7 to 20 MPa, even more preferably from 7 to 15 MPa. The disclosure further relates to use of the single-site polymerisation catalyst in the preparation of a polyethylene polymer component, a polyethylene polymer, or a polyethylene copolymer and to a polyethylene polymer or a polyethylene copolymer having a particle size distribution of the polyethylene polymer or the polyethylene copolymer in powder form described by a lognormal distribution having a scale parameter less than 0.5, preferably less than 0.45, in particular from 0.1 to 0.45, more preferably from 0.15 to 0.4, preferably obtained by the present process.

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