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(71) Applicants: **BOREALIS AG** [AT/AT]; Trabrennstasse 6-8, 1020 Vienna (AT). **ABU DHABI POLYMERS CO. LTD (BOROUGE) - SOLE PROPRIETORSHIP** [AE/AE]; P.O. Box 6925, Sheikh Khalifa Energy Complex, Corniche Road, Abu Dhabi (AE).

(72) Inventors: **BALKRISHNA, Umresh**; Sheikh Khalifa Energy Complex, Corniche Road, PO Box 6951, Abu Dhabi (AE). **KUMAR, Ashish**; Sheikh Khalifa Energy Complex, Corniche Road, PO Box 6951, Abu Dhabi (AE). **FAWAZ, Joel**; c/o Borealis Polyolefine GmbH, St.-Peter-Straße 25, 4021 Linz (AT). **KUMAR KALIAPPAN, Senthil**; Sheikh Khalifa Energy Complex, Corniche Road, PO Box 6951, Abu Dhabi (AE). **SANARES, Enrico**; Sheikh Khalifa Energy Complex, Corniche Road, PO Box 6951, Abu Dhabi (AE). **RAO KONA, Balakantha**; 1 George Street #18-01, Singapore 049145 (SG).

(74) Agent: **KADOR & PARTNER PART MBB**; Corneliusstr. 15, 80469 Munich (DE).

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(54) Title: POLYETHYLENE COMPOSITIONS WITH IMPROVED RHEOLOGICAL PROPERTIES

(57) Abstract: The present invention relates to a polyethylene composition with improved rheological properties, while maintaining thermal properties and mechanical properties, the polyethylene composition having a MFR5 (5.0 kg, 190 °C, ISO 1133) of 0.1 to 4.0 g/10min, and a viscosity at a constant shear stress of 747 Pa, η_{747} , of equal to or more than 130 kPa·s, said polyethylene composition being obtainable or obtained by a process comprising the steps of a) providing a polyethylene base resin (A) having a MFR5 (5.0 kg, 190 °C, ISO 1133) of 0.1 to 3.0 g/10min and optionally comprising a content of one or more C3 to C12 alpha-olefin co-monomer(s) of from 1 to 10 wt.-%, based on the total weight of the polyethylene base resin (A), preferably further melting the polyethylene base resin (A) in an extruder, b) mixing said polyethylene base resin (A) in an amount of from 73.5 to 99.99 wt.-% with a radical initiator (B), selected from the group consisting of the peroxy compounds according to formulae (I) to (III), in an amount of from 0.01 to 1.5 wt.-%, based on the total weight of a resulting mixture, and any mixtures thereof, preferably melt mixing said polyethylene base resin (A) with the radical initiator (B) in a melt mixing device, such as an extruder; and c) reacting said polyethylene base resin (A) and the radical initiator (B) at a temperature within the range of from 150 to 300 °C, thereby obtaining the polyethylene composition. The present invention further relates to a process for producing the polyethylene composition, to articles comprising the polyethylene composition, and to the use of the polyethylene composition for making an article, preferably a pipe or a supplementary pipe article.

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