

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
13 July 2023 (13.07.2023)



(10) International Publication Number
WO 2023/131480 A1

(51) International Patent Classification:
C08L 23/08 (2006.01) C08L 23/12 (2006.01)

(21) International Application Number:
PCT/EP2022/085567

(22) International Filing Date:
13 December 2022 (13.12.2022)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
22150778.3 10 January 2022 (10.01.2022) EP

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

(72) Inventors: **KUMAR, Ashish**; c/o Abu Dhabi Polymers Co. Ltd (Borouge) LLC, Sheikh Khalifa Energy Complex, Corniche Road, PO Box 6951, Abu Dhabi (AE). **ANTONY, Nisha**; c/o Abu Dhabi Polymers Co. Ltd (Borouge) LLC, Sheikh Khalifa Energy Complex, Corniche Road, PO Box 6951, Abu Dhabi (AE). **KALIAPPAN, Senthil Kumar**; c/o Abu Dhabi Polymers Co. Ltd (Borouge) LLC, Sheikh Khalifa Energy Complex, Corniche Road, PO Box 6951, Abu Dhabi (AE).

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

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,

TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: POLYETHYLENE PIPE RESIN WITH IMPROVED LONG TERM HYDROSTATIC STRENGTH

(57) Abstract: The present invention relates to a polyethylene composition comprising a base resin which comprises (A) a first ethylene homo- or copolymer fraction, and (B) a second ethylene copolymer fraction, wherein fraction (A) has a lower molecular weight than fraction (B), fraction (A) is present in an amount of 45.0 to 55.0 wt.%, preferably 46.0 to 53.0 wt.%, more preferably 46.5 to 52.0 wt.%, based on the total weight of the base resin, fraction (B) is present in an amount of 55.0 to 45.0 wt.%, preferably 54.0 to 47.0 wt.%, more preferably 53.5 to 48.0 wt.%, based on the total weight of the base resin, the base resin has a density of 945 kg/m³ to 958 kg/m³, more preferably of 947 to 956 kg/m³, and most preferably of 948 kg/m³ to 954 kg/m³, the polyethylene composition has a melt flow rate MFR₅ of 0.15 to 0.30 g/10min, preferably of 0.20 to 0.29 g/10min, and still more preferably of 0.22 to 0.28 g/10min, the polyethylene composition has a flow rate ratio FRR_{21/5} of 25 to 35, more preferably of 28 to 34, the polyethylene composition has a molecular weight distribution MWD of 20 to 30, more preferably from 21 to 29, and the polymer composition has an average chain length of 900 carbons or higher, to a process for producing the polyethylene composition, to an article, especially a pipe comprising the polyethylene composition and to the use of the polyethylene composition for the production of an article, especially a pipe.

WO 2023/131480 A1