

(19) World Intellectual Property Organization
International Bureau



162162

(43) International Publication Date
13 June 2002 (13.06.2002)

PCT

(10) International Publication Number
WO 02/46251 A2

(51) International Patent Classification⁷: **C08F 210/18**,
2/06, 8/46, C10M 149/00

(21) International Application Number: PCT/US01/44343

(22) International Filing Date:
13 November 2001 (13.11.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/251,198 4 December 2000 (04.12.2000) US

(71) Applicant (for all designated States except US): **EXXON-MOBIL CHEMICAL PATENTS INC.** [US/US]; 5200 Bayway Drive, Baytown, TX 77520-5200 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **SCHAUDER, Jean-Roch** [BE/BE]; Allee de la Frenaie 30, B-1300 Wavre (BE).

(74) Agents: **SCHMIDT, Paige, C.** et al.; ExxonMobil Chemical Company, P.O. Box 2149, Baytown, TX 77522-2149 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

G000002

WO 02/46251 A2

(54) Title: ETHYLENE COPOLYMER COMPOSITIONS SUITABLE FOR VISCOSITY INDEX IMPROVERS AND LUBRICANT COMPOSITIONS

(57) Abstract: The present invention provides processes for making a bimodal solid polymer composition suitable for use as a viscosity index improver. Ethylene and an alpha-olefin comonomer are polymerized in the presence of a metallocene catalyst to form first and second copolymers, in series or parallel reactors, which are combined to form an intimate blend of relatively high and relatively low ethylene content copolymers in the solvent use. The composition can be further grafted and derivatized to provide a viscosity index improver, the composition being produced directly with the correct viscosity, without the need for additional blending, shearing or masticating steps.