

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

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
07 July 2022 (07.07.2022)



(10) International Publication Number
WO 2022/146634 A1

(51) International Patent Classification:

C08F 210/02 (2006.01) C08F 8/06 (2006.01)

C08F 210/16 (2006.01) C08F 8/44 (2006.01)

(21) International Application Number:

PCT/US2021/062335

(22) International Filing Date:

08 December 2021 (08.12.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/131,505 29 December 2020 (29.12.2020) US

(71) Applicant: **EXXONMOBIL CHEMICAL PATENTS INC.** [US/US]; 5200 Bayway Drive, Baytown, TX 77520 (US).

(72) Inventors: **LIN, Tzu-pin**; 2601 N. Reysdorff Road Apt. 1416, Seabrook, TX 77586 (US). **LOPEZ-BARRON, Carlos R.**; 3142 Pleasant Cove Court, Houston, TX 77059 (US). **SMITH, Avery R.**; 8927 Red Cloud Road, Houston, TX 77064 (US). **ROHDE, Brian J.**; 2601 Unit E Bevis Street, Houston, TX 77008 (US). **CARPENTER, Alex E.**; 218 Sleepy Hollow Court, Seabrook, TX 77586 (US). **HOLT-CAMP, Matthew W.**; 26927-B Carol Drive, Huffman, TX 77336 (US). **CANICH, Jo Ann M.**; 15710 Mesa Verde Drive, Houston, TX 77059 (US). **HAGADORN, John R.**; 4838 Knickerbocker Street, Houston, TX 77035 (US).

(74) Agent: **WRKICH, Joseph E.** et al.; ExxonMobil Chemical Company, Law Technology, P.O. Box 2149, Baytown, TX 77522-2149 (US).

(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, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, 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, 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, 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).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

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



WO 2022/146634 A1

(54) Title: POLYOLEFIN-BASED IONOMERS AND PRODUCTION THEREOF

(57) Abstract: Elastomeric polyolefin-based ionomers and methods for making same. The ionomers can include a copolymer comprising: C₂-C₆₀ α-olefin monomer units; optional C₂-C₆₀ α-olefin comonomer units different than the monomer units; optional diene units; and about 0.1 wt% to about 20 wt% metal alkenyl units, based on the weight of the copolymer, wherein the metal alkenyl units have the formula — R(A)—, wherein R is an alkyl group containing 2 to 10 carbon atoms, and A- is an anionic group. The copolymer can further include one or more metal cations derived from the group consisting of alkali metals, alkaline earth metals, group 3-12 metals, group 13-16 metals, and combination(s) thereof. The ionomer has a glass transition temperature of -60 to 5°C, and a weight average (M_w) of 50 to 5,000 kg/mol.