



(43) International Publication Date
2 April 2015 (02.04.2015)

(10) International Publication Number
WO 2015/048033 A1

(51) International Patent Classification:
E01F 9/04 (2006.01)

(21) International Application Number:
PCT/US2014/057014

(22) International Filing Date:
23 September 2014 (23.09.2014)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/884,179 30 September 2013 (30.09.2013) US

(71) Applicant: **3M INNOVATIVE PROPERTIES COMPANY** [US/US]; 3M Center, Post Office Box 33427, Saint Paul, MN 55133-3427 (US).

(72) Inventors: **CARLSON, Eugene, H.**; 3M Center, Post Office Box 33427, Saint Paul, MN 55133-3427 (US). **KIM, Jong-Min**; 19th Floor, 82, Uisadang-daero, Yeongdeungpo-gu, Yeongdeungpo-ku, Seoul, Seoul 150-705 (KR).

(74) Agents: **ADAMSON, Trisha, D.** et al.; 3M Center, Office of Intellectual Property Counsel, Post Office Box 33427, Saint Paul, MN 55133-3427 (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, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, 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, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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))

(54) Title: CRACK-RESISTANT THERMOPLASTIC ROAD MARKING

(57) Abstract: The present application generally relates to a thermoplastic road marker having improved crack-resistance, to compositions of such road markers, and to methods of making and applying these road markers. Some embodiments of the present disclosure relate to a thermoplastic road marking composition, comprising: ethylene vinyl acetate ("EVA") and/or ethylene acrylic acid ("EAA") copolymers in an amount of between about 1.5 wt% to about 6.0 wt%; and core-shell particles in an amount of between about 0.5 wt% and about 3.0 wt%. In at least some embodiments, the EVA and/or EAA have a melt flow index equal to or less than 45 g/ 10 min at 190°C.



WO 2015/048033 A1