



(43) International Publication Date
26 November 2015 (26.11.2015)

(51) International Patent Classification:

C08F 122/10 (2006.01) *C08F 222/10* (2006.01)
C07C 69/54 (2006.01) *C08L 95/00* (2006.01)

(21) International Application Number:

PCT/US2015/031824

(22) International Filing Date:

20 May 2015 (20.05.2015)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/001,444 21 May 2014 (21.05.2014) US

(71) Applicant: IOWA STATE UNIVERSITY RESEARCH
FOUNDATION, INC. [US/US]; 310 Lab Of Mechanics,
Ames, IA 50011-2131 (US).

(72) Inventors: COCHRAN, Eric, W.; 615 Shelley Avenue,
Ames, IA 50014 (US). WILLIAMS, R., Christopher;
2311 Cottonwood Road, Ames, IA 50014 (US).
HERNANDEZ, Nacu; 4611 Mortensen Road, Unit 216,
Ames, IA 50014 (US). FERREIRA PERALTA, Elvira,
Joana; 708 Douglas Avenue, Ames, IA 50010-6220 (US).
FORRESTER, Michael, John; 2114 Sweeney, Ames, IA
50011 (US).

(74) Agents: GOLDMAN, Michael, L. et al.; Leclairryan, A
Professional Corporation, 70 Linden Oaks, Suite 210,
Rochester, NY 14625 (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).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

7 January 2016

(54) Title: POLY(ACRYLATED POLYOL) AND METHOD FOR MAKING AND USING THEREOF AS ASPHALT RUBBER
MODIFIERS, ADHESIVES, FRACKING ADDITIVES, OR FRACKING FLUIDS

(57) Abstract: The present invention relates to a thermoplastic copolymer, block copolymer, and statistical copolymer comprising plural acrylated polyol monomeric units having different degrees of acrylation of hydroxyl groups. The acrylated polyol monomeric units have an average degree of acrylation greater than 1 and less than the number of the hydroxyl groups of the polyol. The present invention also relates to a method of making the thermoplastic copolymer, block copolymer, and statistical copolymer, and using them in various applications, such as asphalt rubber modifiers, adhesives, or an additive in a tracking fluid for oil tracking.

