



(51) International Patent Classification:

C08G 65/08 (2006.01) *C08G 18/48* (2006.01)
C08G 65/34 (2006.01) *C08J 9/00* (2006.01)

(21) International Application Number:

PCT/US2013/050796

(22) International Filing Date:

17 July 2013 (17.07.2013)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

13/553,996 20 July 2012 (20.07.2012) US

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(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, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, 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, 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, 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))

Published:

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

(54) Title: A PROCESS FOR THE *IN SITU* PRODUCTION OF POLYETHER POLYOLS BASED ON RENEWABLE MATERIALS AND THEIR USE IN THE PRODUCTION OF FLEXIBLE POLYURETHANE FOAMS

(57) Abstract: A polyether polyol based on renewable materials is obtained by the *in situ* production of a polyether from a hydroxyl group-containing vegetable oil, at least one alkylene oxide and a low molecular weight polyol having at least 2 hydroxyl groups. The polyol is produced by introducing the hydroxyl group-containing vegetable oil, a catalyst and an alkylene oxide to a reactor and initiating the alkoxylation reaction. After the alkoxylation reaction has begun but before the reaction has been 20% completed, the low molecular weight polyol having at least 2 hydroxyl groups is continuously introduced into the reactor. After the *in situ* made polyether polyol product having the desired molecular weight has been formed, the *in situ* made polyether polyol is removed from the reactor. These polyether polyols are particularly suitable for the production of flexible polyurethane foams.

**WO 2014/014980 A1**