

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
15 April 2010 (15.04.2010)

(10) International Publication Number
WO 2010/042142 A1

PCT

(51) International Patent Classification:
C07C 2/64 (2006.01) *C07C 2/66* (2006.01)

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(21) International Application Number:
PCT/US2009/004536

(22) International Filing Date:
7 August 2009 (07.08.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/287,655 10 October 2008 (10.10.2008) 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, 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, KM, 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, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

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

(54) Title: PROCESS FOR MAKING CYCLOHEXYLBENZENE

(57) Abstract: A process for making cyclohexylbenzene includes (a) contacting benzene and hydrogen in the presence of a first catalyst under hydroalkylation conditions sufficient to form a first effluent stream having cyclohexylbenzene, cyclohexane, methyl cyclopentane, and unreacted benzene, (b) supplying a portion of the first effluent stream to a first separation system to divide the first effluent stream part into (i) a C₆-nch stream comprising benzene, cyclohexane, and methylcyclopentane and (u) a cyclohexylbenzene-πch stream, (c) contacting a portion of the C₆-πch stream with a second catalyst that catalyzes dehydrogenation and exhibits low acidity under conditions sufficient to convert a portion of the cyclohexane to benzene and a portion of the methylcyclopentane to linear and/or branched paraffins to form a second effluent stream, and (d) recycling a portion of the second effluent stream to the contacting step (a).



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