

(10) International Publication Number
WO 2014/015491 A1(43) International Publication Date
30 January 2014 (30.01.2014)

(51) International Patent Classification:

C07C 27/16 (2006.01) C07C 35/08 (2006.01)
C07C 49/403 (2006.01) C07C 29/48 (2006.01)
C07C 45/28 (2006.01)

(21) International Application Number:

PCT/CN2012/079172

(22) International Filing Date:

26 July 2012 (26.07.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicants (for all designated States except US): **RHODIA OPERATIONS** [FR/FR]; 40 rue de la Haie Coq, F-93306 Aubervilliers Cedex (FR). **RHODIA (CHINA) CO., LTD.** [CN/CN]; 3966, Jin Du Road, Xinzhuang Industrial Zone, Minhang District, Shanghai 201108 (CN). **ECOLE NORMALE SUPÉRIEURE DE LYON** [FR/FR]; 15 Parvis Rene Descartes, Lyon, F-69342 (FR). **EAST CHINA NORMAL UNIVERSITY** [CN/CN]; 3663 Zhongshan Bei Lu, Putuo District, Shanghai 200062 (CN).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DECAMPO, Floryan** [FR/CN]; 3966, Jin Du Road, Xinzhuang Industrial Zone, Minhang District, Shanghai 201108 (CN). **ZHOU, Wenjuan** [CN/CN]; 3966, Jin Du Road, Xinzhuang Industrial Zone, Minhang District, Shanghai 201108 (CN). **WU, Peng** [CN/CN]; Shanghai Key Laboratory of Green Chemistry and Chemical Processes, Department of Chemistry, East China Normal University, North Zhongshan Rd. 3663, Putuo District, Shanghai 200062 (CN). **XUE, Kai** [CN/CN]; Shanghai Key Laboratory of Green Chemistry and Chemical Processes, Department of Chemistry, East China Normal University, North Zhongshan Rd. 3663, Putuo District, Shanghai 200062 (CN). **LIU, Yueming** [CN/CN]; Shanghai Key Laboratory of Green Chemistry and Chemical Processes, Department of Chemistry, East

China Normal University, North Zhongshan Rd. 3663, Putuo District, Shanghai 200062 (CN). **HE, Mingyuan** [CN/CN]; Shanghai Key Laboratory of Green Chemistry and Chemical Processes, Department of Chemistry, East China Normal University, North Zhongshan Rd. 3663, Putuo District, Shanghai 200062 (CN).

(74) Agent: **KING & WOOD MALLESONS**; 20th Floor, East Tower, World Financial Center, No. 1 Dongsanhuan Zhonglu, Chaoyang District, Beijing 100020 (CN).

(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, 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, 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, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

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

(54) Title: CYCLOALKANE OXIDATION CATALYSTS AND METHOD TO PRODUCE ALCOHOLS AND KETONES

(57) Abstract: Disclosed is a method of oxidizing a cycloalkane to form a product mixture containing a corresponding alcohol and ketone, said method comprising contacting a cycloalkane with a hydroperoxide in the presence of a catalytic effective amount of a crystalline MWW-type titanasilicate catalyst. Hydroperoxides may notably be tert-butyl hydroperoxide, tert-amyl hydroperoxide, cumene hydroperoxide, ethylbenzene hydroperoxide, cyclohexyl hydroperoxide, methylcyclohexyl hydroperoxide, tetralin hydroperoxide, isobutylbenzene hydroperoxide, and ethylnaphthalene hydroperoxide.



WO 2014/015491 A1