

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 May 2009 (07.05.2009)

PCT

(10) International Publication Number
WO 2009/058531 A1

(51) International Patent Classification:

C07C 29/50 (2006.01) **C07C 409/08** (2006.01)
C07C 45/36 (2006.01) **C07C 409/10** (2006.01)
C07C 49/78 (2006.01) **C07C 409/14** (2006.01)
C07B 41/00 (2006.01)

(21) International Application Number:

PCT/US2008/079172

(22) International Filing Date: 8 October 2008 (08.10.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/984,271 31 October 2007 (31.10.2007) US
61/045,819 17 April 2008 (17.04.2008) US

(71) Applicant (for all designated States except US): **EXXON-MOBIL CHEMICAL PATENTS INC.** [US/US]; 5200 Bayway Drive, Baytown, TX 77520-2101 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BENITEZ, Francisco, M.** [US/US]; 1618 Stone Meadows Lane, Houston, TX 77094 (US). **DAKKA, Jihad, M.** [IL/US]; 3 Gleim Road, Whitehouse Station, NJ 08889 (US). **MOZELESKI, Edmund, J.** [US/US]; 28 Hoffman Drive, Califon, NJ 07830 (US). **ZUSHMA, Stephen** [US/US]; 30 West Main Street, Clinton, NJ 08809 (US). **BUCHANAN, J., Scott** [US/US]; 13 Terrell Road, Lambertville, NJ 08530 (US). **STANAT, Jon, E.** [US/US]; 912 C Lovett Boulevard, Houston, TX 77006 (US).

(74) Agents: **BOONE, Anthony, G.** et al.; Exxonmobil Chemical Company, Law Technology, P.O. Box 2149, Baytown, TX 77522-2149 (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, BR, BW, BY, BZ, CA, CH, 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, 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, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, 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
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(54) Title: OXIDATION OF HYDROCARBONS

(57) Abstract: In a process for oxidizing a hydrocarbon to the corresponding hydroperoxide, alcohol, ketone, carboxylic acid or dicarboxylic acid, a reaction medium comprising a hydrocarbon is contacted with an oxygen-containing gas in the presence of a catalyst comprising a cyclic imide of the general formula (I): wherein each of R^1 and R^2 is independently selected from hydrocarbyl and substituted hydrocarbyl radicals having 1 to 20 carbon atoms, or from the groups SO_3H , NH_2 , OH and NO_2 , or from the atoms H, F, Cl, Br and I provided that R^1 and R^2 can be linked to one another via a covalent bond; each of Q^1 and Q^2 is independently selected from C, CH, N, and CR^3 ; each of X and Z is independently selected from C, S, CH_2 , N, P and an element of Group 4 of the Periodic Table; Y is O or OH; k is 0, 1, or 2; l is 0, 1, or 2; m is 1 to 3; and R^3 can be any of the entities listed for R^1 . The contacting is conducted under conditions such as to maintain the concentration of both water and organic acids in the reaction medium below 50 ppm.

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