

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 August 2011 (11.08.2011)

PCT

(10) International Publication Number
WO 2011/096989 A1

(51) International Patent Classification:

C07C 37/07 (2006.01) *C07C 37/08* (2006.01)
C07C 39/04 (2006.01) *C07C 45/53* (2006.01)
C07C 2/74 (2006.01) *C07C 409/14* (2006.01)
C07C 13/28 (2006.01) *C07C 49/403* (2006.01)

(21) International Application Number:

PCT/US2010/060989

(22) International Filing Date:

17 December 2010 (17.12.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/301,786	5 February 2010 (05.02.2010)	US
61/358,711	25 June 2010 (25.06.2010)	US
10171955.7	5 August 2010 (05.08.2010)	EP

(71) Applicant (*for all designated States except US*):
EXXONMOBIL CHEMICAL PATENTS INC.
[US/US]; A Corporation Of The State Of Delaware, 5200
Bayway Drive, Baytown, TX 77520-2101 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **XU, Teng** [US/US];
4330 Pine Blossom Trail, Houston, TX 77059 (US).
DAKKA, Jihad, M. [IL/US]; 3 Gleim Road, Whitehouse
Station, NJ 08889 (US). **BECKER, Christopher, L.**
[US/US]; 3109 Driftwood Dr., Manhattan, KS 66503
(US). **KUECHLER, Keith, H.** [US/US]; 912 Applewood
Drive, Friendswood, TX 77546 (US). **BENITEZ, Fran-
cisco, M.** [US/US]; 1618 Stone Meadows Lane, Houston,
TX 77094 (US). **SMITH, Charles, M.** [US/US]; 3726

Tangley, Houston, TX 77005 (US). **NAIR, Hari** [IN/US];
3616 Richmond Avenue, Apt 1605, Houston, TX 77046
(US).

(74) Agents: **SULLIVAN, Jamie, L.** 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, 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, 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, SD, SL, SZ, TZ, UG,
ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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).

Published:

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

(54) Title: DEHYDROGENATION OF CYCLOHEXANONE TO PRODUCE PHENOL

(57) Abstract: In a process for the dehydrogenation of cyclohexanone to produce phenol, a feed comprising cyclohexanone is contacted with a dehydrogenation catalyst under dehydrogenation conditions comprising a temperature of less than 4000C and a pressure of less than 690 kPa, gauge, such 0.1 to 50 wt% of the cyclohexanone in said feed is converted to phenol and the dehydrogenation product contains less than 100 ppm by weight of alkylbenzenes.



WO 2011/096989 A1