

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
24 January 2008 (24.01.2008)

PCT

(10) International Publication Number
WO 2008/010926 A1

(51) International Patent Classification:
C07D 301/08 (2006.01) *C07D 301/10* (2006.01)

(21) International Application Number:
PCT/US2007/015651

(22) International Filing Date: 9 July 2007 (09.07.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/489,086 18 July 2006 (18.07.2006) US

(71) Applicant (for all designated States except US): **LYON-DELL CHEMICAL TECHNOLOGY, L.P.** [US/US];
Two Greenville Crossing, 4001 Kennett Pike, Suite238,
Greenville, DE 19807 (US).

(72) Inventors: **QIN, Kun**; 401 Homestead Lane, Chadds
Ford, PA 19317 (US). **GREY, Roger, A.**; 111 Piedmont
Road, West Chester, PA 19382 (US). **WHITMAN, Peter,
J.**; 14 Chelsea Court, Glen Mills, PA 19342 (US).

(74) Agents: **CARROLL, Kevin, M.** et al.; Lyondell Chemical
Company, 3801 West Chester Pike, Newtown Square, PA
19073 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
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, SV, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, 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, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: DIRECT EPOXIDATION PROCESS USING IMPROVED CATALYST COMPOSITION

(57) Abstract: A process for producing an epoxide comprising reacting an olefin, hydrogen and oxygen in the presence of a cata-
lyst comprising a titanium or vanadium zeolite, palladium and lead. The process results in significantly reduced alkane by-product
formed by the hydrogenation of olefin.



WO 2008/010926 A1