

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
3 May 2007 (03.05.2007)

PCT

(10) International Publication Number
WO 2007/050193 A1

(51) International Patent Classification:
C07D 301/06 (2006.01)

(21) International Application Number:
PCT/US2006/034393

(22) International Filing Date:
1 September 2006 (01.09.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/257,955 25 October 2005 (25.10.2005) US

(71) Applicant (for all designated States except US): **LYON-DELL CHEMICAL TECHNOLOGY, L.P.** [US/US];
Two Greenville Crossing, 4001 Kennett Pike, Suite 238,
Greenville, DE 19807 (US).

(72) Inventors: **LE-KHAC, Bi**; 1210 Birmingham Road, West
Chester, PA 19382 (US). **GREY, Roger, A.**; 111 Piedmond
Road, West Chester, PA 19382 (US).

(74) Agents: **HAN, Yuanzhang** 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, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP,
KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT,
LU, LV, LY, MA, MD, 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, 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: EPOXIDATION PROCESS COMPRISING A POLYMER-ENCAPSULATED NOBLE METAL CATALYST COM-
PRISING AN ION-EXCHANGE RESIN

(57) Abstract: A process is disclosed for the epoxidation of an olefin with hydrogen and oxygen in the presence of an oxidation
catalyst comprising a transition metal zeolite and a polymer-encapsulated noble metal catalyst. The noble metal catalyst comprises
a noble metal and an ion-exchange resin. The process using the polymer-encapsulated noble metal catalyst gives higher epoxide
productivity than a process that uses a noble metal catalyst which is not encapsulated by a polymer.



WO 2007/050193 A1