

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
22 November 2007 (22.11.2007)

PCT

(10) International Publication Number
WO 2007/133363 A1

(51) International Patent Classification:
C07D 301/04 (2006.01) **B01J 8/22** (2006.01)

(21) International Application Number:
PCT/US2007/009062

(22) International Filing Date: 12 April 2007 (12.04.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/415,598 2 May 2006 (02.05.2006) US

(71) Applicant: **LYONDELL CHEMICAL TECHNOLOGY, L.P.** [US/US]; Two Greenville Crossing, 4001 Kennett Pike, Suite 238, Greenville, Delaware 19807 (US).

(72) Inventors: **JUBIN, John C.** (deceased). **ONIMUS, Wilson H.**; 154 Maple Avenue, Holmes, Pennsylvania 19043 (US).

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

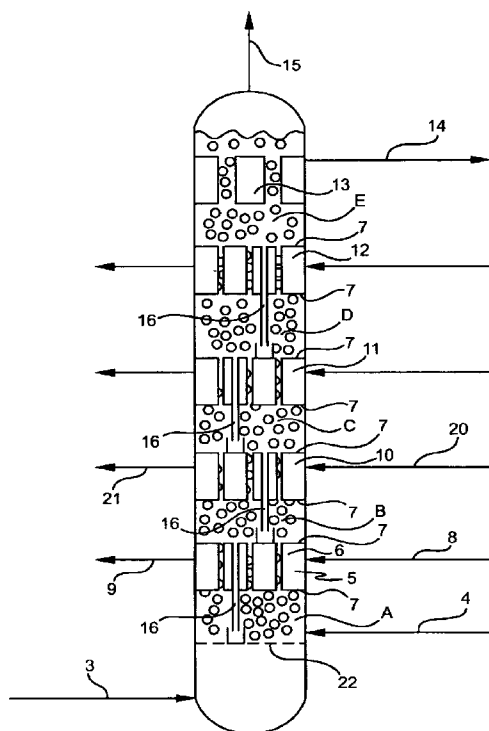
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, 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

[Continued on next page]

(54) Title: REACTION SYSTEM



(57) Abstract: Reaction gases such as hydrogen, oxygen and propylene are reacted in a slurry of solid catalyst in solvent, the reaction being carried out in a series of separate zones with intermediate removal of the exothermic heat of reaction by indirect heat exchange.



— *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 "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.