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(21) International Application Number: PCT/EP98/06059 (22) International Filing Date: 23 September 1998 (23.09.98) (30) Priority Data: 08/995,239 19 December 1997 (19.12.97) US (71) Applicant (for all designated States except MN): ARCO CHEMICAL TECHNOLOGY, L.P. [US/US]; Suite 238, Two Greenville Crossing, 4001 Kennett Pike, Greenville, DE 19807 (US). (71) Applicant (for MN only): ARCO CHEMIE TECHNOLOGIE NEDERLAND B.V. [NL/NL]; Theemsweg 14, 3197 KM Botlek Rotterdam, P.O. Box 7195, NL-3000 HD Rotterdam (NL). (72) Inventors: JUBIN, John, C., Jr.; 144 Summit House, West Chester, PA 19382 (US). DANNER, Jeffrey, B.; 102 Sean Drive, Kennett Square, PA 19348 (US). (74) Agent: SMAGGASGALE, Gillian, Helen; Mathys & Squire, 100 Gray's Inn Road, London WC1X 8AL (GB).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.
(54) Title: EPOXIDATION PROCESS USING SERIALY CONNECTED CASCADE OF FIXED BED REACTORS		
(57) Abstract An olefin epoxidation process is operated using a plurality of reactor vessels, each containing a fixed bed of a heterogenous catalyst such as titania-on-silica. The reactor vessels are connected in series whereby a feedstream comprised of olefin and an active oxygen species is passed through said series of reactor vessels in contact with the heterogenous catalyst to accomplish conversion of the olefin to the corresponding epoxide. As the activity of the catalyst in an individual reactor vessel falls to an undesirably low level, said reactor vessel is taken out of service and a replacement reactor containing fresh or regenerated catalyst introduced. The replacement reactor vessel may, in alternative embodiments of the process, be the first or the last reactor vessel in said series. For example, the feedstream may first be contacted with either the most active or the least active charge of catalyst within the series of reactor vessels. Although the latter embodiment permits somewhat longer catalyst life, the former embodiment requires much smaller capacity heat exchangers. The process of this invention considerably reduces catalyst usage as compared to a conventional fixed bed epoxidation process where all of the catalyst is replaced or regenerated at the same time.		