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(21) International Application Number: PCT/US99/28699 (22) International Filing Date: 7 December 1999 (07.12.99) (30) Priority Data: 60/112,429 16 December 1998 (16.12.98) US (71) Applicant (for all designated States except US): THE DOW CHEMICAL COMPANY [US/US]; 2030 Dow Center, Midland, MI 48674 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): BOWMAN, Robert, G. [US/US]; 1307 Kirkland Drive, Midland, MI 48640 (US). CLARK, Howard, W. [US/US]; 4318 Forestview Drive, Midland, MI 48642 (US). KUPERMAN, Alex [CA/US]; 903 Deerfield Court, Midland, MI 48642 (US). HARTWELL, George, E. [US/US]; 2908 Georgetown Drive, Midland, MI 48642 (US). MEIMA, Garnt, R. [NL/NL]; Ferlemastraat 75, NL-4535 JB Terneuzen (NL). (74) Agent: TREANGEN, John, B.; Intellectual Property Section, 2030 Dow Center, Midland, MI 48674 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, 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 <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: PROCESS FOR THE DIRECT OXIDATION OF OLEFINS TO OLEFIN OXIDES (57) Abstract A process and catalysts for the direct oxidation of an olefin having three or more carbon atoms, such as propylene, by oxygen to an olefin oxide, such as propylene oxide. The process involves contacting the olefin under reaction conditions with oxygen in the presence of hydrogen and a catalyst. The catalyst contains silver and titanium, optionally gold, and optionally, at least one promoter element selected from Group 1, Group 2, zinc, cadmium, the platinum group metals, the lanthanide rare earths, the actinide elements, and combinations thereof. In preferred embodiments, the catalyst is calcined prior to use, rather than reduced prior to use. Suitable titanium-containing supports include titanium dioxide, titanium dioxide on silica, titanosilicates, promoter metal titanates, titanium dispersed on silica and promoter metal silicates.		