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(21) International Application Number: PCT/US98/20370 (22) International Filing Date: 30 September 1998 (30.09.98) (30) Priority Data: 08/943,212 6 October 1997 (06.10.97) US (71) Applicant: CATALYTIC DISTILLATION TECHNOLOGIES [US/US]; 10100 Bay Area Boulevard, Pasadena, TX 77507 (US). (72) Inventors: ADAMS, John, R.; 10100 Bay Area Boulevard, Pasadena, TX 77507 (US). HICKEY, Thomas, P.; 12141 Wickchester Lane, Houston, TX 77079 (US). (74) Agent: JOHNSON, Kenneth, H.; P.O. Box 630708, Houston, TX 77263 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, 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 <i>With international search report.</i>
(54) Title: METHOD FOR CARRYING OUT HETEROGENEOUS CATALYSIS (57) Abstract Catalytic distillation reactions are improved by having an inert condensing component present in the reaction which is boiling and condensing within the reaction which washes the catalyst in the system and, in the case of gaseous reactants, occludes a portion of the reactants to facilitate the reaction without unduly high pressures. The inert condensing component is boiling at the conditions within the reactor and is taken overhead for condensation and return as reflux. The inert condensing component may occlude the gaseous reactants allowing for better contact with the catalyst and provides the benefits of concurrent reaction and distillation, for example, the reaction of CO and H ₂ over a copper catalyst to produce methanol using propane as the inert condensing component.		