

PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷: B01J 27/198, 27/188, 27/19, 27/192	A1	(11) International Publication Number: WO 00/44494 (43) International Publication Date: 3 August 2000 (03.08.00)
(21) International Application Number: PCT/US00/00920 (22) International Filing Date: 13 January 2000 (13.01.00) (30) Priority Data: 09/239,651 29 January 1999 (29.01.99) US (71) Applicant: SCIENTIFIC DESIGN COMPANY, INC. [US/US]; 49 Industrial Avenue, Little Ferry, NJ 07643-1901 (US). (72) Inventor: BORTINGER, Arie; 220 Emmett Place, Ridgewood, NJ 07450 (US). (74) Agent: LONG, William, C.; 90 Maple Avenue, Morristown, NJ 07960 (US).		(81) Designated States: AU, BR, CA, CN, ID, JP, KR, MX, SG, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>
(54) Title: PHOSPHORUS/VANADIUM MALEIC ANHYDRIDE CATALYST PREPARATION (57) Abstract A VPO catalyst precursor having the formula $(VO)HPO_{4a}H_2OM_mP_pO_y$ wherein M is at least one promoter element selected from the group consisting of elements from Groups IA, IB, IIA, IIIB, IVA, IVB, VA, VB, VIA, VIB, and VIIA of the Periodic Table of the Elements, and mixtures thereof, a is a number of at least about 0.3, m is a number of from about 0 to about 0.3, p is a number of from about 0 to about 0.3, any y corresponds to the amount of oxygen necessary to satisfy the valence requirements of all elements present, is activated by heating the catalyst precursor in an atmosphere selected from the group consisting of air, steam, inert gas, and mixtures thereof to a temperature not to exceed about 300 °C, maintaining the catalyst precursor at this temperature and providing an atmosphere containing molecular oxygen, steam, and optionally an inert gas, increasing the temperature at a programmed rate of from about 0.5 °C/min to about 15 °C/min to a value effective to eliminate the water of hydration from the catalyst precursor, adjusting the temperature to a value greater than 350 °C, but less than 550 °C, and maintaining the adjusted temperature in a molecular oxygen/steam-containing atmosphere comprised of at least 1 vol % oxygen for a time effective to provide a vanadium oxidation state of from about +4.0 to about +4.5 and to complete transformation of the precursor to the active catalyst having the formula $(VO)_2P_2O_7M_2P_2O_y$ wherein M, m, p and y are defined above.		