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(21) International Application Number: PCT/US97/11078 (22) International Filing Date: 25 June 1997 (25.06.97) (30) Priority Data: 08/677,163 11 July 1996 (11.07.96) US (71) Applicant: MOBIL OIL CORPORATION [-/US]; 3225 Gallows Road, Fairfax, VA 22037 (US). (72) Inventors: MINK, Robert, Ivan; 30A Gates Avenue, Warren, NJ 07059 (US). NOWLIN, Thomas, Edward; 7 Perrine Path, Cranbury, NJ 08512 (US). (74) Agents: SCHNELLER, Marina, V. et al.; Mobil Oil Corporation, 3225 Gallows Road, Fairfax, VA 22037 (US).	(81) Designated States: AU, CA, JP, KR, <u>SG</u> European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>	
(54) Title: HIGH ACTIVITY CATALYSTS FOR THE PREPARATION OF POLYETHYLENE WITH AN INTERMEDIATE MOLECULAR WEIGHT DISTRIBUTION		
(57) Abstract A supported alpha-olefin polymerization catalyst composition of this invention of improved activity as measured by productivity is prepared in a multi-step process. An ethylene homopolymerization or ethylene copolymerization catalyst is formed by: (i) providing a slurry of a solid porous inorganic support having reactive hydroxyl (-OH) groups and a non-polar solvent; (ii) impregnating said support having -OH groups, with RMgR' compound, to form an intermediate, which intermediate has an -OH group:Mg ratio of less than 1, wherein each of said R and R' is alkyl of 1 to 12 carbon atoms and is the same or different; (iii) treating the intermediate with TiCl ₄ to form a titanium containing intermediate which has an -OH group:Ti ratio of less than 1; (iv) reacting the titanium containing intermediate with an amount of oxygen containing electron donor containing 1 to 15 carbon atoms, combining the electron donor treated titanium containing intermediate with triethylaluminum to form the catalyst. The catalyst also produces polymers having relatively intermediate molecular weight distribution.		