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**OLEFIN POLYMERIZATION
CATALYST AND PROCESS FOR
OLEFIN POLYMERIZATION**

Mukaiyama Teruak; Mitani Makoto; Oouchi Kunihiro Tokyo, JAPAN assigned to Mitsui Petrochemical Industries Ltd

Disclosed in an olefin polymerization catalyst comprising a transition metal compound having at least two transition metals in which at least one of said metals is bonded to a ligand having a cyclopentadienyl skeleton, at least one of said metals is selected from Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W and lanthanoid metals and at least one of the others is selected from the specific transition metals; and an organoaluminum oxy-compound or an organoboron compound. Corresponding to the kind of the metal combined with said metal selected from Sc, Y, Ti, Zr, Hf, V, Nb, Ta, Cr, Mo, W and lanthanoid metals, the olefin polymerization catalyst exhibit a property to give polymers having a wide molecular weight distribution in spite of the catalyst system using one kind of a transition metal compound, or to give polymers having high molecular weight and be excellent in the polymerization activity at low polymerization temperature.

5627119

**CATALYTIC SYSTEM AND PROCESS
FOR THE PRODUCTION OF
POLYDIOLEFINS**

Biagini Paolo; Lugli Gabriele; Garbassi Fabio; Andreussi Piero Treccate, ITALY assigned to Encichem Elastomeri S r l; Eniricerche S p

A catalytic system to polymerize diolefinic monomers consists of a lanthanide salt, an organometallic compound of a metal belonging to groups I, II and III of the periodic table of elements

and an organometallic compound of boron. The polymers obtained are characterized in that they have a high degree of 1,4 chain units and ratio between 1,4-cis/1,4-trans units which can vary as desired, and also a narrow molecular weight distribution.

5627120

**HIGHLY ACTIVE DOUBLE METAL
CYANIDE CATALYSTS**

Le-Khac Bi West Chester, PA, UNITED STATES assigned to ARCO Chemical Technology L P

Highly active double metal cyanide (DMC) catalysts are disclosed. The catalysts comprise a DMC complex, and organic complexing agent, and from about 5 to about 80 wt. %, based on the amount of catalyst, of a polyether having a number average molecular weight less than about 500. The catalysts polymerize propylene oxide at a rate in excess of about 1 kg PO/g Co/min. at 100 ppm catalyst, based on the weight of finished polyether, at 105°C The catalysts, which are easy to prepare, give polyether polyols with exceptionally low unsaturation levels.

5627122

**HIGHLY ACTIVE DOUBLE METAL
CYANIDE COMPLEX CATALYSTS**

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Highly active double metal cyanide (DMC) complex catalysts and methods for making them are disclosed. The catalysts contain less than about 0.2 moles of metal salt per mole of DMC compound in the catalyst, and unlike other highly active DMC catalysts, are substantially crystalline. Polyether polyols made from the catalysts have low unsaturation and are useful for making many types