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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**

Le-Khac B; Hinney Harry R; Bowman Paul T West Chester, PA, UNITED STATES assigned to ARCO Chemical Technology L P

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

of polyurethane products.

5627246

**SUPPORTED METALLOCENE
COMPLEXES HAVING
HETEROFUNCTIONAL GROUPS IN
THE CYCLOPENTADIENYL SYSTEM
AS CATALYST SYSTEMS**

Langhauser Franz; Fischer David; Kerth Juml urgen; Schweier Guml unther; Barsties Elke; Brintzinger Hans-Herbert; Schaible Stefan; Roell Werner Bad Durkheim, GERMANY assigned to BASF Aktiengesellschaft

A supported catalyst system that is obtained by a) reacting a finely divided carrier with an a-trisalkoxy-silyl- omega-haloalkyl compound, b) adding a metallocene complex of the indicated formula I to the reaction product of a); c) reacting the product of b) with a quaternizing agent; and d) optionally adding an open-chain or cyclic alumoxane compound. The catalyst system can be used to prepare polymers of C2-C10-alk-1-enes.

5629253

**POLYMERIZATION CATALYST
SYSTEMS, THEIR PRODUCTION AND
USE**

Chang Main Houston, TX, UNITED STATES assigned to Exxon Chemical Patents Inc

This invention is generally directed toward a supported catalyst system useful for polymerizing olefins. The method for supporting the catalyst of the invention provides for a supported bulky ligand transition metal catalyst which when utilized in a polymerization process substantially reduces the reactor fouling and sheeting particularly in a slurry phase polymerization process.

5629254

**SUBSTITUTED INDENYL RING
CONTAINING METALLOCENE
CATALYST FOR PROPYLENE
POLYMERIZATION PROCESS**

Fukuoka Daisuke; Tashiro Takashi; Kawaai Koji; Saito Junji; Ueda Takashi; Kiso Yoshihisa; Imuta Junichi; Fujita Terunori; Nitabaru Masatoshi; Yoshida Masayasu Kuga gun, JAPAN assigned to Mitsui Petrochemical Industries Co Ltd

The novel transition metal catalyst of the invention is represented by the following formula (I): (*See Patent for Chemical Structure*) (I) wherein M is a zirconium or hafnium; R1 is a hydrocarbon group of 2 to 6 carbon atoms, R2 is an aryl group of 6 to 16 carbon atoms; X1 and X2 are each a halogen atom; and Y is a divalent hydrocarbon group, a divalent silicon-containing group.

5629255

**HIGHLY ACTIVE CATALYSTS FOR
OLEFIN POLYMERIZATION AND A
POLYMERIZATION PROCESS USING
THESE CATALYSTS**

Hafner Norbert; Tuml oltsch Wilfried; Ledwinka Hans; Neissl Wolfgang Linz, AUSTRIA assigned to PCD Polymere Gesellschaft m b H

Highly active catalysts, for olefin polymerization, from tetraneophylzirconium and partly hydroxylated metal oxides from group IIa, IIIa, IVa or IVb of the Periodic Table, which are essentially free from by-products.