

SUBSTITUTED GROUP 4 METAL COMPLEXES, CATALYSTS AND OLEFIN POLYMERIZATION PROCESS

ABSTRACT

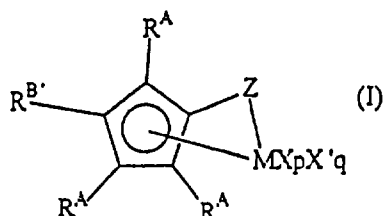


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A metal complex corresponding to the formula:



ACTION



where M is a Group 4 metal that is in the +2, +3 or +4 formal oxidation state;

R^A independently each occurrence is hydrogen, or a hydrocarbyl, halohydrocarbyl, hydrocarbyloxyhydrocarbyl, dihydrocarbylaminohydrocarbyl, dihydrocarbylamino, hydrocarbyloxy, hydrocarbylsilyl, or trihydrocarbylsilylhydrocarbyl group of from 1 to 80 atoms, not counting hydrogen, or further optionally, two or more R^A groups from the same or different metal complexes or R^A and R^B from the same or different metal complexes may be covalently linked together;

R^B independently each occurrence is hydrogen, or a hydrocarbyl, halohydrocarbyl, hydrocarbyloxyhydrocarbyl, dihydrocarbylaminohydrocarbyl, dihydrocarbylamino, hydrocarbyloxy, hydrocarbylsilyl, or trihydrocarbylsilylhydrocarbyl group of from 1 to 80 atoms, not counting hydrogen, and optionally, two or more R^B groups from different metal complex or R^B and an R^A from the same or a different metal complex may be covalently linked together;

Z is $(R^D)_2Si-Y$, wherein R^D independently each occurrence is tolyl, n-butylphenyl, or naphthyl or two R^D groups together are C_{6-20} arylene; and

Y is bonded to M and is selected from the group consisting of -O-, -S-, $-NR^E$ -, and $-PR^E$ -; wherein, R^E independently each occurrence is hydrogen, or a member selected from hydrocarbyl, hydrocarbyloxy, silyl, halogenated alkyl, halogenated aryl, and combinations thereof, said R^E having up to 20 nonhydrogen atoms;

X is an anionic or dianionic ligand group having up to 60 atoms exclusive of the class of ligands that are cyclic, delocalized, π -bound ligand groups;

X' independently each occurrence is a neutral ligand having up to 40 atoms;

p is zero, 1 or 2, and is two less than the formal oxidation state of M when X is an anionic ligand, and when X is a dianionic ligand group, p is 1; and

q is zero, 1 or 2.

No Fig.