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ABSTRACT

CONSTRAINED GEOMETRY ADDITION POLYMERIZATION CATALYSTS,
PROCESSES FOR THEIR PREPARATION, PRECURSORS THEREFOR,
METHODS OF USE, AND NOVEL POLYMERS FORMED THEREWITH

5 Metal coordination complexes comprising a metal
of Group 3 (except Sc), 4-10 or the lanthanide series
and a delocalized π -bonded moiety have said moiety
substituted with a constrain-inducing moiety which
reduces the angle at the metal between the centroid of
said π -bonded moiety and at least one remaining
10 substituent. Metal coordination complexes comprising a
metal of Group 3 (except Sc), 4-10 or the Lanthanide
Series and a cyclopentadienyl or substituted
cyclopentadienyl group forming part of a ring structure
in which the metal is both bonded to an adjacent
15 convalent moiety and held in association with the
(substituted) cyclopentadienyl moiety. Amidosilane and
amidoalkanediyl compounds covalent moieties are
particularly preferred.

20 The complexes of the invention form addition
polymerization catalysts with activating cocatalysts such
as Lewis acids, ammonium salts, oxidizing agents and,

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especially, aluminum compounds, particularly aluminum trialkyls.

Novel polymers, including E1PE resins and pseudo-random copolymers, can be obtained using the catalysts of the invention.

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