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Novel Titanium (IV) Catalysts for Olefin Polymerization

Titanium (IV) and Nickel (II) Catalysts Based on
Anilino tropone Ligands



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The field of olefin polymerization has been remarkably renewed with the use of metallocene and post metallocene catalyst. Novel transition-metal complexes were studied as catalysts in ethylene polymerization. The aim of this work is to investigate the feasibility of replacing the cyclopentadienyl ligands of metallocenes by bis(aminotropone) ligands as well as by new bis(imino)pyridinato ligands without losing the good properties of the metallocenes, such as high activity and formation of linear polymer. It was presumed that the polymerization mechanism and the active center in ethylene polymerization would be similar for iminopyridinato and metallocene catalysts. Titanium (IV) and nickel (II) catalysts based on bis(anilino tropone) ligands were prepared and their structures determined to clarify the relationship between structure of the catalyst precursor and polymerization results. In experimentation, the syntheses, structures and olefin polymerization behavior of Ti complexes containing a pair of chelating aminotropone [O-N] ligands are reported. DFT studies revealed that bis(aminotropone) Ti complexes, when activated, provide a metal alkyl in the cis position to a vacant coordina

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