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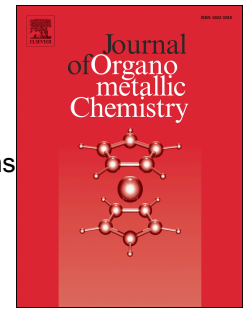

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Highly Active Mono and Bis-ligated Iminopyridyl Nickel Catalysts for 1-Hexene Reactions

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Abstract

A series of mono- and bis-ligated iminopyridyl Ni(II) catalysts were prepared and characterized. The activation of these Ni(II) complexes with methylaluminoxane generated the toluene alkylation by the hexene monomers, dimers and trimmers with high activities using only 1-hexene as feedstock. Most interestingly, The bis-ligated iminopyridyl Ni(II) catalysts demonstrated much better thermal stability and showed higher activities at high temperature than the mono-ligated iminopyridyl Ni(II) catalysts. The mono-ligated and bis-ligated iminopyridyl Ni(II) catalysts also influenced the products distribution.

Keywords Nickel, olefin oligomerization, iminopyridyl, tandem catalysis, Friedel-Crafts alkylation

1. Introduction

Catalytic oligomerization of α-olefins represents an important route to the production of specialty chemicals such as the synthetic lubricants, gasoline additives and kerosene fuels [1–3]. In the past decades, there is a growing interest in the development of new late transition metal catalysts for olefin oligomerization and polymerization in both academic and industrial areas. The impetus behind this movement is the belief that the ability of electron-rich late