The Evaluation Of Some Novel Zirconocene Alkyl Compounds As Catalyst Precursors For Ethylene Polymerisation

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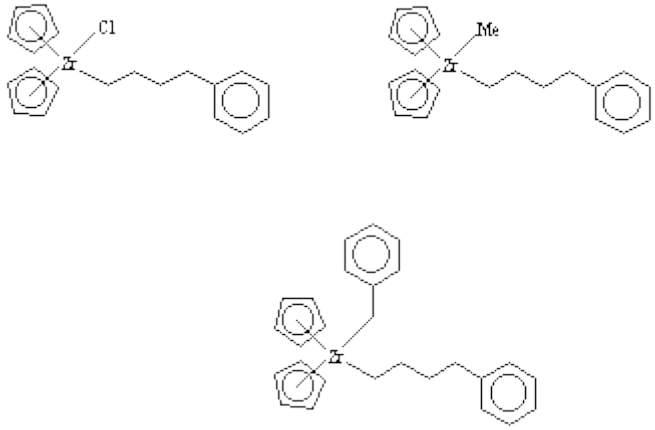
ABSTRACT



The transition elements, titanium and zirconium have traditionally been used as major components of olefin polymerisation catalysts. Both these metals have been integral to conventional multi-site Ziegler-Natta systems as well as so-called single-site metallocene catalysts1[1]. Irrespective of which system we consider, metal-alkyls have been implicated as playing a pivotal role in all of the proposed catalytic cycles for olefin polymerisation.

In this particular paper, we report on the synthesis of some new zirconocene alkyls(both mono as well as dialkyl). Examples of some of the compounds prepared are shown below:

The complexes synthesised were characterised using FTIR, ^{1}H and ^{13}C nmr spectroscopy, mass spectrometry and micro-analysis.

Attempts at the selective activation of these complexes with $AgClO_4$, $AgBPh_4$, $Ag(OSO_2CF_3)$and methylaluminoxane were investigated. The resulting activated cationic complexes were evaluated for their ability to polymerise ethylene. The results are compared against that for standard metallocene catalysts based on Cp_2ZrCl_2.

1[1] H.Sinn et al, Angew. Chem. Int. Ed. Eng., **19(5)**, 1980,390