Polymerization of Ethylene Using Metallocene and Aluminoxane Systems

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ABSTRACT

This paper describes ethylene polymerization using a number of metal-lotocene and aluminoxane catalyst systems, Cp₂MR₂ and methylaluminoxane [M = Zr, W, Nb; R = Cl, CH₃]. Two types of methylaluminoxane, MAO (1) and MAO (2), were used as cocatalysts.

The polymerization activities of the complexes Cp₂WCl₂ and Cp₂NbCl₂ were compared with that of Cp₂ZrCl₂. The Nb and W complexes were found to be less active than the Zr complex. Polyethylene characterization was also carried out by the following methods: gel permeation chromatography (GPC), differential scanning calorimetry (DSC) and nuclear magnetic resonance (NMR).

Key words: metallocene, aluminoxanes, Ziegler-Natta catalysis, ethylene polymerization, active centres