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Novel Ni-based FI catalyst for ethylene polymerization



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ABSTRACT

Novel nickel based FI catalysts with different ligands from well known salicylaldehyde imine ligand, to naphthoxy-imine ligand were designed, synthesized, and characterized. The effect of synthesized ligand on ethylene polymerization was investigated. Extensive experimentations have been carried out using the nickel catalysts after activation with methylaluminumoxane (MAO) to study the ethylene polymerization behavior of the prepared catalysts comparably. Substituents on the arene moiety and/or the backbone of the ligand influence the activities of the active sites of the catalyst during the polymerization. Therefore, not only polymerization behavior varied, but also versatile products regarding molecular weight, crystallinity and melting point were obtained. The crystallinities and melting points of the polymer obtained at the temperatures of 10, 30 and 60 °C were 58%, 39%, and 14% and 130, 97 and 88 °C respectively.

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