

## Synthesis of $\alpha$ -Diimin Nickel(II) Catalyst Supported on Graphene and Graphene Oxide for Ethylene Slurry Polymerization

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**Abstract :** The late transition metal catalyst of the end group of transition metals in the periodic table as Ni, Fe, Co, and Pd was grown up rapidly in polyolefin industries recently. These metals with suitable ligands exhibited special characteristic properties and appropriate activities in the production of polyolefins. The ligand 1,4-bis (2,6-diisopropyl phenyl) acenaphthene was synthesized by reaction of 2,6-diisopropyl aniline and acenaphthenequinone. The ligand was added to nickel (II) dibromide salt for synthesis the 1,4-bis (2,6 diisopropylphenyl) acenaphthene nickel (II) dibromide catalyst. The structure of the ligand characterized by IR technique. The catalyst then deposited on graphene and graphene oxide by vander walss-attachment for use in Ethylene slurry polymerization process in the presence of catalyst activator such as methylaluminoxane (MAO) in hexane solvent. The structure of the catalyst characterized by IR and TEM techniques and some of the polymers were characterized by DSC. The highest activity was achieved at 600 C for catalyst.

**Keywords :**  $\alpha$ -diimine nickel (II) complex, graphene as supported catalyst, late transition metal, ethylene polymerization

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