

Preparation, characterization and polymer hydrogenation activity of graphene supported catalyst

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Graphene, a one-atom thick sheet of sp²-bonded carbon atoms, has recently attracted tremendous attention as a potential catalyst support in heterogeneous catalysis. Graphene has extremely high specific surface area (theoretically up to 2630 m²/g), it is expected to function as an excellent catalyst support material. However, there are two major challenges for such catalytic applications: the serious aggregation and restacking of graphene nanosheets which greatly reduces the surface area, and the low interaction between graphene and catalyst precursor results in poor active sites dispersion. The aim of this study is to investigate the feasibility of graphene as a support for polymer hydrogenation catalyst. The graphene sheets prepared by modified Hummer's chemical method were employed as the support for the preparation of precious metal based catalyst for the hydrogenation of polymers. Details concerning the preparation, characterization and polymer hydrogenation activity of the prepared catalysts will be revealed in this paper.

Keywords: Heterogeneous catalyst; precious metal, polymer hydrogenation, graphene,

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