

Synthesis of Thermally Reduced Graphene Sheets Using Poly(ionic liquid)

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Abstract : It is demonstrated that graphene sheets are produced via thermal reduction of graphene oxide (GO) in the presence of imidazoiium-based poly(ionic liquid) (PIL). PILs plays an important role in minimizing the reduction time and dispersing graphene sheets in organic solvents. In addition, as-obtained graphene sheets are found to be functionalized with PIL molecules by the strong interaction of PIL and the graphene, as analyzed by various physical methods such as atomic force microscopy (AFM), X-ray photoelectric spectroscopy (XPS) and Raman spectroscopy. Such a strong interaction allows the successful production of graphene/PIL composites, in which their electrical properties are controllable by the loading level of graphene in the PIL matrix.

Key Words : Graphene Sheet, Graphene oxide, Ionic Liquid Polymer