

## Covalent Functionalization of Graphene Oxide with Aliphatic Polyisocyanate

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**Abstract :** In this study, the graphene oxide was functionalized with polyisocyanate (piGO). The functionalization was carried out at 45°C for 24 hrs under nitrogen atmosphere. The X-ray diffraction (XRD), scanning electron microscope (SEM), Fourier transform infrared spectroscopy (FT-IR) and thermal gravimetric analysis (TGA) were utilized in order to evaluate the GO functionalization. The GO and piGO stability were then investigated in polar and nonpolar solvents. Results obtained showed that polyisocyanate was successfully grafted on the surface of graphen oxide sheets through covalent bonds formation. The surface nature of the graphen oxide was changed into the hydrophobic after functionalization. Moreover, the graphen oxide sheets interlayer distance increased after modification.

**Keywords :** graphen oxide, functionalization, polyisocyanate, XRD, TGA, FTIR

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