

### Characteristics of a UV-cured epoxy nanocomposite with amine-functionalized graphene nanoplatelets

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Graphene nanoplatelets (GNPs) are considered as highly prospective filler materials for polymer composites because they have high aspect ratio and superior electrical and thermal conductivity. To benefit from the change in properties resulting from nanoscale phenomena, GNPs must be uniformly dispersed into, and strongly interacted with, the polymer matrix. Therefore, in this study, GNPs were amine-functionalized and used to prepare a cycloaliphatic epoxy nanocomposite comprising them by UV-curing. FTIR spectroscopy was used to confirm the amine-functionalization of GNPs. Thermal and mechanical properties of the epoxy nanocomposite were investigated by DSC, DMA, TMA and UTM. The amine-functionalization induced strong interfacial bonding between GNPs and the epoxy matrix resulting in considerable improvement in the performance of the nanocomposite.