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**One-step surface modification of graphene oxide and influence of its particle size on the properties of graphene oxide / epoxy resin nanocomposites**

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Abstract

Graphene oxide (GO) was synthesized from expanded graphite with particle size of 130  $\mu\text{m}$  (GO130) and 1200  $\mu\text{m}$  (GO1200) and characterized. GO130 was oxidized to a higher degree and contained larger concentration of C=O bonds. After the synthesis, the GO was kept in a form of viscous slurry in methanol to prevent formation of graphite oxide. The slurry was mixed with a hardener and methanol was evaporated. The nanocomposites with GO content from 0.25 to 1.0 wt.% were prepared by mixing the epoxy resin, hardener and hardener/GO mixture and cured. The particles were homogeneously distributed within the polymer matrix as observed by SEM on the plasma etched samples. The glass transition temperature increased from 81 °C to up to

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