

## **Synthesis and Potential Applications of Graphene and Graphene Based Nanocomposites.**

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Graphene, known as an allotrope of carbon, is a two-dimensional single layer of graphite densely packed in a honeycomb crystal lattice which possesses various unique properties such as superior electrical conductivity, high thermal conductivity and mechanical properties, large surface-to- volume ratio etc. It has revolutionized the nanotechnology platform since its discovery. Graphene can be used as backbone for many derivatives such as graphene oxide (GO), graphene-based nanocomposites, which facilitates tremendous applications of graphene in various fields such as optical electronics [touchscreen, LCD], ultrafiltration, energy conversion [solar cells and fuel cells], energy storage application [lithium-ion batteries, super capacitors], biomedical engineering [bioimaging, biosensor, cancer therapy] etc. For all the amazing properties and applications, it can be said that graphene is the wonder material of the 21st century.