

Preparation and Characterization of Graphene Oxide Polymer Matrix Composite

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Abstract (Arial 10)

High mechanical strength and low density of graphene makes it a promising candidate as reinforcement material for high strength polymer matrix composite. In addition, the high electrical and thermal conductivity of graphene opens up opportunities in the area of multifunctional composites. Several techniques have been explored for exfoliating graphene from graphite crystals including mechanical exfoliation (using scotch tape), sonication and shearing with chemicals that break down the bonds between the layers, and ball milling. However, such methods may not be suitable for production of grams or kilogram quantities of large area graphene flakes, which is an important requirement for practical engineering applications. Therefore, purpose of this research is to: (1) explore new and optimize existing chemical exfoliation methods of graphite to produce graphene at gram-levels, and then (2) utilize and study the effect of exfoliated flakes as reinforcement for polymer matrix composites.

References

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Figures

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