Production of graphene by liquid phase exfoliation of graphite

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Graphene has emerged as one of the most captivating nanomaterials due to its exceptional electrical, mechanical, optical, and other remarkable properties. These outstanding properties have driven the development of numerous promising applications across various fields, including sensors, electronics, energy storage, photonic devices, advanced composites, paints and coatings, metrology, and others.

Liquid-phase exfoliation (LPE) appears to be well-suited for large-scale production and has emerged as one of the leading methods for manufacturing commercially available graphene [1-2].

This study reports liquid phase exfoliation of graphite with TritonX-100 and Graphite powder, DI- H_2O, and added after the exfoliation $(NH_4)_6Mo_2O_{24}\cdot 4H_2O$ and then sulphurised.

The materials obtained were comprehensively characterized using a set of physical and chemical methods of analysis, including structural, morphological and spectroscopic studies. This paves the way for advancing LPE into a scalable, cost-efficient, clean, and environmentally sustainable method for producing next-generation two-dimensional nanomaterials suitable for industrial-scale applications [1-2].

References:

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