

Dissolving nanocarbons : how to prepare (single layer only) graphene in water

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(i) Full exfoliation of graphite and graphite nanofibres to form thermodynamically stable, negatively charged, graphene (graphenide) flakes in solution can be achieved by dissolution of graphite intercalation compounds (GICs) in low boiling point aprotic organic solvents under inert atmosphere.^{1,2} Such solutions can be used to reduce metal salts and produce metal nanoparticles directly supported on the graphene substrate.³ Under certain conditions, graphenide can be transferred to water as single layer graphene only. The Raman spectra of the dispersions themselves show unambiguous signature of single layer graphene.⁴ We have thus succeeded in preparing air stable, bulk suspensions of single layer graphene in water.

References

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