A short review on electrochemical exfoliation of graphene and graphene quantum dots

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Abstract

The synthesis of graphene and graphene quantum dots (GQDs) employing various approaches with a range of precursors, chemicals, and parameters has been reported. Most of the top-down and bottom-up techniques employ strong and hazardous chemical environments, complicated and tedious procedures, are time-consuming, and often require special equipment. Another drawback of the techniques reported is the production of agglomerated, inhomogeneous, and non-dispersible graphene in aqueous solvents or organic solvents, thus limiting its application. This work specifically and comprehensively describes the electrochemical exfoliation of graphene and GQDs, which is often considered as a simple one-step, facile, non-hazardous, and highly efficient technique yet favourable for mass production. A brief discussion on the advantageous and challenges of the electrochemical technique and applications of the electrochemically exfoliated graphene and GQDs is also presented.

Keywords

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