



Important Milestone in the Manufacture of Graphene Oxide

Highlights

- 2D Fluidics Pty Ltd files PCT Patent application on thin-film processing of graphene oxide and novel nanomaterials.
- Ability to manufacture high quality graphene oxides in a sustainable process which does not have the environmental impact associated with existing methods.
- An important milestone in the commercialisation of the Vortex Fluidic Device.

First Graphene Ltd (FGR), through its jointly owned subsidiary 2D Fluidics Pty Ltd, is pleased to announce the filing of a PCT patent application on 15th November 2018, for Devices and Methods for Thin-Film Chemical Processing.

2D Fluidics Ltd, is a company jointly owned by FGR and Flinders University with the objective of commercialising novel thin-film processing tools invented by Prof. Colin Raston and his team. 2D Fluidics has invented a proprietary process for the synthesis of graphene, graphene oxide and other high value nanomaterials. These new processes are now protected within the PCT application.

In particular, the application covers routes to manufacture graphene oxide directly from graphite raw materials. The process has the advantage of manufacturing high quality graphene oxide without the use of high-volume corrosive reagents and associated waste streams used in the incumbent, Hummers method. Graphene oxide consists of oxidised graphene layers and has valuable uses in water filtration, energy storage and electronics.

Managing Director, Craig McGuckin, stated: *"This is an important milestone in the commercialisation of these unique processing tools. We are particularly excited about the opportunity to cost-effectively manufacture graphene oxide products to add to our portfolio."*

Professor Colin Raston, Professor in Clean Technology at Flinders University stated: *"The ability to manufacture graphene oxide in a benign way has been a major challenge, and it is now a reality with the completion of an extensive programme of research. We are continuing to understand the fundamental science in the VFD, and we look forward to further improvements on the processing technology for graphene oxide, and a range of other nano-carbon and related materials."*

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ASX Symbol

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About First Graphene Ltd (ASX: FGR)

First Graphene has established a commercial graphene production facility for the bulk scale manufacture of graphene at competitive prices. The Company continues to develop graphene related intellectual property from which it intends to generate licence and royalty payments.

The Company has collaboration arrangements with four universities and is at the cutting edge of graphene and 2D related material developments. Most recently First Graphene has become a Tier 1 participant in the Graphene Engineering and Innovation Centre (GEIC) of the University of Manchester. First Graphene is working with numerous industry partners for the commercialisation of graphene and is building a sales book with these industry partners.

PureGRAPH™ Range of Products

The PureGRAPH™ range of products were released by FGR in September 2018, in conjunction with a detailed Product Information Sheet.

PureGRAPH™ graphene powders are available with lateral platelet sizes of 20µm, 10µm and 5µm. The products are characterised by their low defect level and high aspect ratio.

About Graphene

Graphene, the well-publicised and now famous two-dimensional carbon allotrope, is as versatile a material as any discovered on Earth. Its amazing properties as the lightest and strongest material, compared with its ability to conduct heat and electricity better than anything else, means it can be integrated into a huge number of applications. Initially this will mean graphene is used to help improve the performance and efficiency of current materials and substances, but in the future, it will also be developed in conjunction with other two-dimensional (2D) crystals to create some even more amazing compounds to suit an even wider range of applications.

One area of research which is being very highly studied is energy storage. Currently, scientists are working on enhancing the capabilities of lithium ion batteries (by incorporating graphene as an anode) to offer much higher storage capacities with much better longevity and charge rate. Also, graphene is being studied and developed to be used in the manufacture of supercapacitors which can be charged very quickly, yet also be able to store a large amount of electricity.

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