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First Graphite Limited

ACN 007 870 760

ABN 50 007 870 760

Registered Office

Suite 3

9 Hampden Road

Nedlands WA 6009

Tel +61 1300 660 448

Fax +61 1300 855 044

Directors

Warwick Grigor

Craig McGuckin

Peter R. Youd

Chris Banasik

Company Secretary

Peter R. Youd

Email:

info@firstgraphite.com.au

Website:

www.firstgraphite.com.au

ASX Symbol

FGR, FGROA, FGROB

First Graphite to Collaborate with Flinders University on Graphene Purification

Memorandum of Understanding Executed

First Graphite (ASX: FGR) is pleased to report it has entered into a Memorandum of Understanding (MoU) with Flinders Partners Pty Ltd, the technology transfer and communication company associated with Flinders University.

Highlights

- Collaboration on commercial development of the Vortex Fluidic Device (VFD) and Turbo Thin Film processing technology for graphite and graphene
- Enables secondary processing of FGR's electrochemically exfoliated graphene to achieve single layer thickness
- Potential applications for other materials and industries

Graphene purification technology

The parties will be collaborating on commercially developing and scaling-up graphite and graphene purification technology pioneered by Professor Colin Raston and winner of the Ig Nobel prize for refolding proteins with the VFD.

The application of a Vortex Fluidic Device (VFD) covers a growing number of processing capabilities, from small molecule synthesis through to processing advanced materials. The technology works by precisely controlling a number of different parameters that affect fluid dynamics and the shear forces experienced by these fluids. The technology has been designed from the outset with continuous flow processing capabilities with the scalability of processing depending on the volume of material required. For example, this could be a single Vortex Fluidic Device unit for niche applications in nanotechnology, or a parallel array of multiple units or a single large unit for much higher volume industrial applications.

Flinders Partners' Opportunity Development Director Mark Bruce indicated these industrial partnerships were crucial to transferring research from the laboratory to commercial applications.

"The collaboration with First Graphite provides a great opportunity to develop and scale-up the technology to ensure it reaches its commercial potential. Working towards delivering high-value carbon materials to global markets with this technology is exciting for Flinders Partners and a good example of Government-funded research having an impact in the broader community."

FGR believe the VFD has the potential to further enhance purification and functionalization of graphene produced from FGR's full-scale graphene production cell. The technology has the potential to dovetail extremely well into the work being undertaken at the University of Adelaide.

FGR's Managing Director Craig McGuckin said he was excited to have entered into the MoU with Flinders Partners.

"The MoU with Flinders Partners represents another step in the evolution of First Graphite as it seeks to commercialise the opportunities being developed in the graphene space. Working with this new graphene purification technology is one of those vital steps and we look forward to working with Flinders Partners to take this forward in conjunction with the graphene production cell operating in Perth.

About First Graphite Ltd (ASX: FGR)

First Graphite is aiming to develop an underground mining operation to extract high-grade, crystalline vein graphite, which is unique to Sri Lanka. The Company holds exclusive rights to exploration licenses covering approximately 39,500 hectares in area, with historical workings located within nearly all license grids.

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, mean 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 are able to be charged very quickly, yet also be able to store a large amount of electricity.

Nature of vein graphite

Sri Lankan graphite deposition model is best described from the 'bottom up': tension fractures formed in the metamorphic sediments, caused by the folding of the sediments, creating 'conduits' for the hydrothermal deposition of high quality vein graphite. Historically, mining of these veins has found the veins generally increase in thickness and grade quality with increasing depth. Graphite veins generally dip steeply at -70° to near vertical, enabling 'narrow vein' extraction mining techniques similar to those used on narrow vein, high grade gold deposits. The method commonly used is an overhead retreat stoping technique where the high grade vein graphite is mined and hauled to surface without contamination. The graphite selvages, in contact with the surrounding waste, is hauled to surface and stockpiled for upgrading. The balance of the waste is used to fill the floor of the stope.

Due to the nature of the vein graphite, it is anticipated vein widths of ~25cm, using narrow vein mining techniques can be economically extracted from underground operations.

For further information:

Craig McGuckin

Managing Director

First Graphite Ltd

Peter R. Youd

Executive Director

First Graphite Ltd

www.firstgraphite.com.au