



# PureGRAPH™ Products in Mining Equipment Give Impressive Results

## Highlights

- PureGRAPH™ graphene provides up to 37% improved tensile strength in high performance polyurethane systems.
- PureGRAPH™ graphene improves abrasion resistance by 100% to 500% in high performance polyurethanes.
- PureGRAPH™ enhanced polyurethane systems to be field trialled at a large iron ore producer with collaboration partner newGen.
- Opening up a new graphene-enhanced product vertical for the mining industry with near term global sales potential.

Advanced materials company, First Graphene Limited (“FGR” or “the Company”) (ASX: FGR) is pleased to confirm test results have proved significant tensile and abrasion improvements in high performance polyurethane systems used in the mining industry.

## Background

As previously reported FGR is working closely with a number of companies to introduce performance enhancement in their existing products through the addition of its PureGRAPH™ graphene products. newGen Group is introducing the PureGRAPH™ products into their range of wear liners for bucket wheel, pipe spools and conveyor applications.

Impressive improvements in tensile strength of 37% and abrasion resistance in the range of 100 to 500% have been measured. These will provide the mining industry with enhanced, longer life, wear-resistant materials providing significant savings to operators through reduced downtime, safety and environmental gains and reduced product consumption.

First Graphene and newGen have successfully introduced the PureGRAPH™ range to reclaimer bucket liners, and now also pipe spooling. newGen intend to introduce the PureGRAPH™ range of products progressively to all wear-related products. This fits well with First Graphene’s stated objective to introduce the PureGRAPH™ product range into bulk use applications, opening up a new product vertical in the mining sector.

## *First Graphene 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  
Clive Carver

## *Joint Company Secretaries*

Peter R Youd  
Nerida Schmidt

E: [info@firstgraphite.com.au](mailto:info@firstgraphite.com.au)  
W: [firstgraphite.com.au](http://firstgraphite.com.au)

## *ASX Symbol*

FGR  
FGROC



200kg reclaimer bucket liner and 250mm pipe spool strengthened by PureGRAPH™ 20

Managing Director, Craig McGuckin, stated: *“Building on previous announcements independent testing confirms the significant benefits that the introduction of the PureGRAPH™ range can make to high strength industrial materials. First Graphene expects this will translate into multi-tonne sales of PureGRAPH™ to the mining services sector in the near term. We thank the foresight of companies like newGen who have embraced this new technology.”*

Technical note:

All test measurements were carried by an independent ISO17025 registered laboratory.

### **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.*

*For further information, please contact*

*Craig McGuckin  
Managing Director  
First Graphene Limited  
+ 611300 660 448*

*Warwick Grigor  
Non-Executive Chairman  
First Graphene Limited  
+61 417 863187*