

### WHAT DO COMPOSITES, RUBBERS, ENERGY STORAGE AND CONCRETE ALL HAVE IN COMMON?

CORPORATE PRESENTATION



A growing number of established products and applications globally that are related to these markets, are being significantly enhanced by applying 'graphene' as a chemical additive.



# Market analysis

first graphene

What makes graphene compelling – current trends, facts and statistics:



Rubbers and elastomers show major improvements in tensile strength, elongation, abrasion resistance and tear strength with the **addition of graphene** 



Independent studies found graphene can make selected products up to 30% stronger **and more resistant to wear** 



Graphene is the thinnest material ever isolated, despite this, it is up to 300 times stronger than steel and the **most conductive material in the world** 

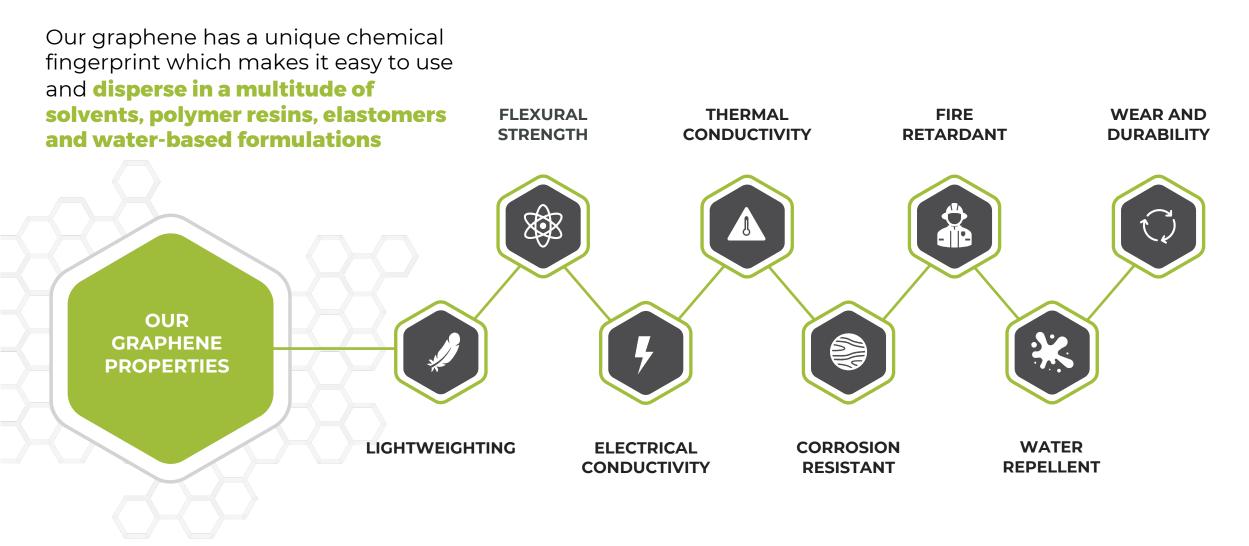


Add just 0.01% of graphene into concrete - responsible for around 8% of the world's CO<sub>2</sub> emissions - **reduces its carbon footprint by approximately 30%** 

## **Global markets 'industry eco-systems'**



# **Graphene properties**



# **About FGR**

first graphene

#### WHO WE ARE

- First Graphene (ASX:FGR) is an Australian technology and manufacturing company.
- World leading graphene manufacturer based in Henderson, Western Australia.
- Tier 1 partner at the Graphene Engineering and Innovation Centre (GEIC), Manchester, UK.
- New substance registration in United Kingdom (UK-REACH), Europe (EU-REACH) and Australia (AICIS) in place.
- Active membership of ISO standards committee for graphene registration.
- Market capitalization: AUD\$133m
- Share price 50-day average: AUD\$0.24

#### WHAT WE DO

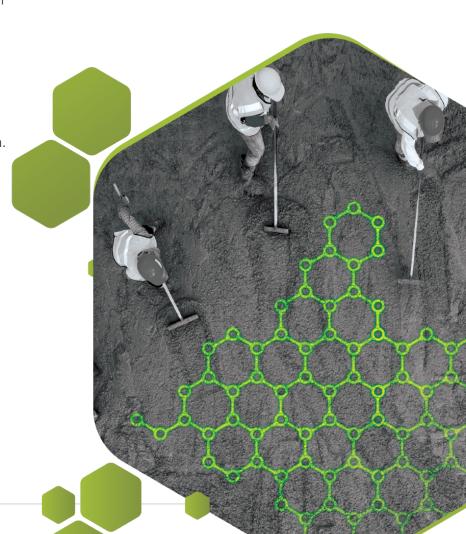
- Producer of high performing PureGRAPH® products creating value in key markets.
- Quality leader in graphene materials acknowledged by our customers.
- Robust 100 tonne/year modular manufacturing facility built and operational today.
- Developed IP to mass produce commercial scale graphene for multiple products and industries.

#### **CORE MARKETS**

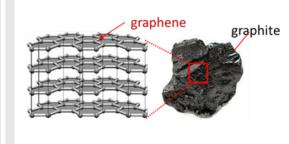
- Rubbers and elastomers automotive, industrial and leisure.
- Cement and concretes recycled, precast panels, ready mix and grouts.
- Composites and plastics plastic parts, carbon and glass fibre, including boats, surfboards and swimming pools.
- Coatings thermal, antistatic and anti-corrosion.
- Energy storage supercapacitors, battery anodes, petroleum feedstock derived green hydrogen.

#### OUTLOOK

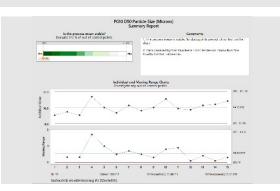
- With the production process and capacity "banked", strongly focused on the commercialisation of PureGRAPH® and driving sales demand.
- Invest into new applications for emerging PureGRAPH® markets.



# **FGR - World Leading Supply Capabilities**







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#### VEIN GRAPHITE RM's

- Captive ensures reliability
- No processing at mine
- In-house stock
- Low metals
- Large graphene plates

#### ELECTROCHEMICAL EXFOLIATION

- High Yield
- Single Step
- Unique to FGR
- Scalable/Low Cost
- Low waste

#### INDUSTRIAL FINISHING

- Well established
- Controlled Quality
- Finishing Options
- Scalable/Low Cost
- Low Waste

#### QUALITY ASSURANCE

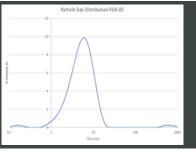
- 6-sigma approach
- Industry leading measurement techniques
- ISO/TC229 aligned
- At-line testing
- C of A for each batch

### **About PureGRAPH**<sup>®</sup>

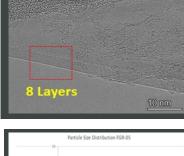
- Highest performing graphene additive available at tonnage quantities
- **PureGRAPH®** powders contain pristine, high aspect ratio platelets with typical thickness of 5-10 carbon atoms
- Lateral sizes are carefully controlled in the **PureGRAPH**<sup>®</sup> range at 5µm, 10µm, 20µm and 50µm ensuring consistent and repeatable performance
- Easily dispersed, delivering **multiple benefits** across a range of materials
- **PureGRAPH® AQUA** products allow easier dispersion into water and solvent-based formulations, beneficial for specific applications including coatings, cement and rubbers
- Continued product development to make tailored PureGRAPH<sup>®</sup> platelet sizes and functionalised platelets – to aid formulation and extend applications.

PureGRAPH<sup>®</sup> 5 Scanning Electron Microscopy (scale bar = 20µm): This analysis of dried product powder shows aggregated powders of high aspect ratio graphene platelets. These particles disperse readily in solvent and polymer media.





PureGRAPH<sup>®</sup> 5 Malvern Mastersizer analysis showing  $D_v(50) = 5\mu m$  and  $D_v(90) = 11\mu m$ i.e no large particle tail is present. Laser light scattering is used as a powder size quality control tool. PureGRAPH<sup>®</sup> products have very reproducible  $D_v(50)$  and  $D_v(90)$ .



# **Commercialisation process**

#### Unrivalled production and scalable capacity

- Modular and scalable production process
- 100 tonnes per annum
- Low capital cost and short lead times to increase capacity

#### **Positive cashflow**

• Operational performance with cost base of 20 tonnes

#### **Production efficiency**

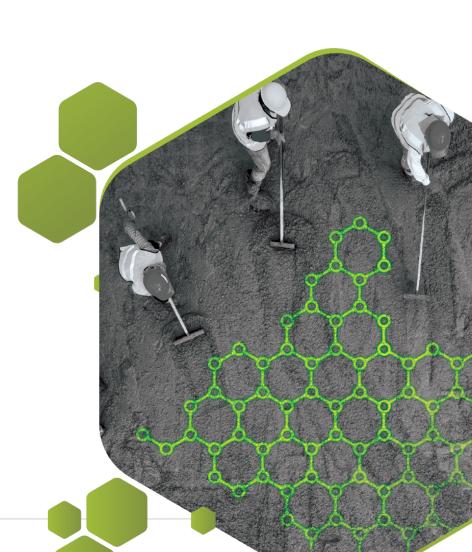
• Breakeven point at ~6 tonnes per annum

#### **Existing agreements**

- planarTECH Graphene coated textiles and wearables
- Aquatic Leisure Technologies Aqua Technics pools
- Steel Blue work boots and safety footwear
- newGen Group mining wear liners and abrasion resistant surface treatments

#### **Global sales outlook and strategic appointments**

- Recruitment of key Commercial Leads for material segments Composites & Plastics, Rubbers & Elastomers, Cement & Concrete, Coatings and Energy Storage.
- Global reach through direct, distributor, reseller and structured channels.



### **Executives and Board of Directors**



**Michael Bell** Chief Executive Officer

- International sales, engineering and business leadership expertise across a diverse range of industries
- 20 years' experience in high growth across both SME and Corp. environments - former Senior Vice President of ST Engineering Group Singapore
- Bachelor of Science -Physics, Management Science University of Canterbury.



**Paul Ladislaus** Senior Process Engineer

- Chartered Chemical Engineer with 20 years' chemicals experience in operational, design, project management and R&D roles
- Extensive particle manufacturing expertise with Huntsman and Thomas Swan.
- Master's Degree in Chemical Engineering from the University of Cambridge.



Aditya Asthana Chief Financial Officer

- More than 15 years experience in finance and business across Australia and Asia
- Significant expertise in risk management, transformation and business turnarounds with Orica Ltd and its international subsidiaries
- Held a number of CFO and Director roles in Australia, Singapore and Indonesia.



Warwick Grigor Non-Executive Chairman

- Respected and experience mining analyst
- Graduate of the Australian National University, with degrees in law and economics
- Former Chairman of Cannacord Genuity Australia Ltd.



nan **Michael Quinert** Non-Executive Director

- Founding partner of Quinert Rodda Lawyers
- Focus on capital raising and listing rule compliance
- Over 20 years experience with ASXlisted companies in the capacity as legal counsel and director, in the mining and technology sectors
- Non-Executive Chairman of West Wits Mining Ltd.



Dr Andy Goodwin Non-Executive Director

- Ph.D. scientist with extensive leadership experience in innovation and new business growth with specialty chemicals industry
- 35 years in pharma & specialty chemicals with Sanofi, Dow Corning Corporation and Thomas Swan.
- Business leadership in carbon nanomaterials since 2012.

### **Commercial sales team**

### first graphene



#### **Neil Armstrong** Commercial Manager -**Composites & Plastics**

- Chemical engineer with 10 years commercial experience
- Significant role in developing FGR's production facility and facilitating early adopters of PureGRAPH®
- Previously held roles with Wear Systems Solutions



**Todd McGurgan** Commercial Manager – Cement & Concrete

- More than 25 years experience in the global cement industry
- Former leadership position at Holcim Australian & N7
- Previous roles include BASF. Cement Australia. Sunstate Cement and Readymix



• More than 25 years

Chartered Naval

and Asia

experience in the Marine industry

Architect in Europe

Expertise designing,

producing composite

America's Cup and other boats

engineering and

structures for

**Matt Curthoys** Commercial Manager -Marine Composites & Windfarms



Recruiting Commercial Manager -Rubbers & Elastomers

TBC



Recruiting Commercial Manager -Energy Storage

TBC



Recruiting

Commercial Manager -Coatings

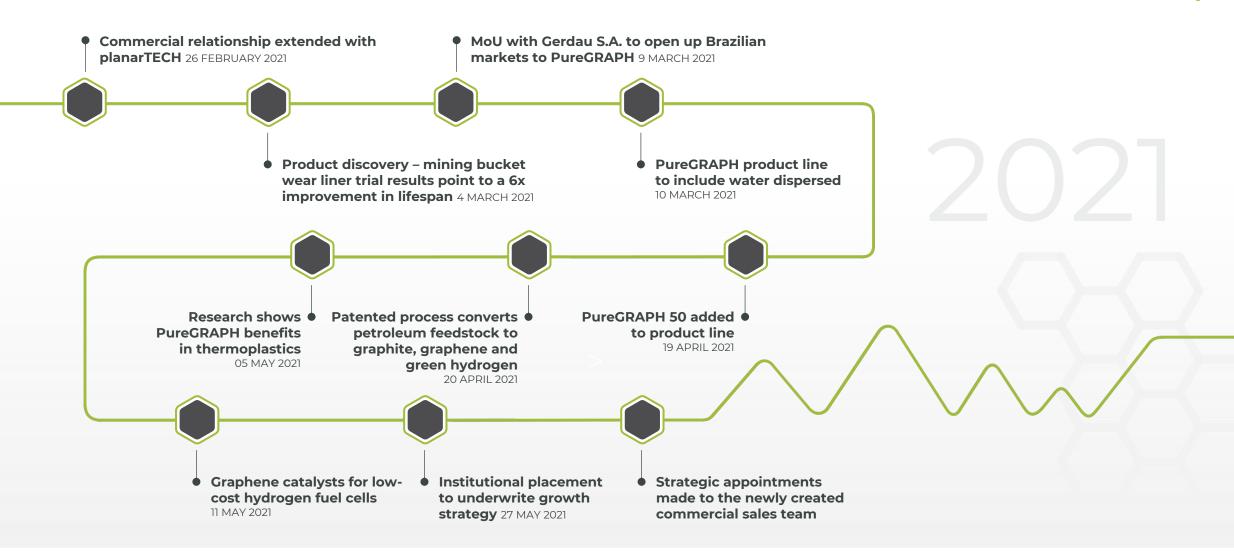
• TBC

ASX:FGR - CORPORATE PRESENTATION

# Financials



## **Progress and recent FGR accomplishments**



## **Sales and growth strategy**

#### 1. Global markets

Clear sales focus on immediate sectors include:

- Rubbers & Elastomers
  Composites & Plastics
- Cement & concretes
  Coatings
  Energy storage

#### 2. New & innovative solutions

- Discovered new hydrodynamic cavitation process to convert petroleum feedstock into high-grade graphite and graphene.
- Applicable in lithium-ion battery anodes for electricity storage devices, also produces 'green' hydrogen' appealing to oil producers looking to enter the green energy market.
- Successful tonnage sales in polymer strengthening and wear resistance.
- Qualifying trials with composites and concrete.
- Progress in novel supercapacitor and battery materials.



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### **Investment highlights**

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FGR is the world's largest producer of commercial grade graphene – PureGRAPH® is a commercial grade, high volume and high quality/repeatable specifications adaptable to many products and industries We're on an aggressive sales campaign to secure global market share – given the capability of our production facility we're ready to diversify our client base and grow Ongoing research of new applications for driving greater demand of graphene led products and technologies – Green Hydrogen and process to convert petroleum feedstock (crude oil) into graphite/graphene materials

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