

GRAPHENE: Revolutionising material performance and helping the cement and concrete sector **reduce CO₂ emissions for a greener future**

INVESTOR PRESENTATION

MAY 2022



Investment highlights

first graphene



1. ADDRESSING CLIMATE CHANGE

PureGRAPH® delivers environmental benefits across industries, including **helping the cement and concrete sectors to reduce CO₂ emissions by 20%**



2. STRONG PRODUCT PORTFOLIO

An established, diversified product portfolio and industry leading production capacity, enabling us to service the **significant growth trajectory ahead**



3. ESTABLISHED MARKET STRATEGY

A **structured go-to-market strategy** targeting identified, lucrative markets segments, with subject matter experts **driving global adoption of PureGRAPH®**

4. QUALITY AND CONSISTENCY

The **world's largest producer** of graphene with **unparalleled quality assurance** and **readily scalable processes**

5. INDUSTRY COLLABORATION

Unrivalled industry application IP, a strong partner network and science backed data to enable development of **PureGRAPH® solutions**

About First Graphene

first graphene



What we do

- Materials technology company specialising in commercial applications for graphitic technologies
- New substance registration in United Kingdom (UK-REACH), Europe (EU-REACH) and Australia (AICIS) in place, expanding into USA with the EPA
- Active membership of ISO standards committee for graphene registration



Where we operate

- World-class manufacturing facility in Henderson, Western Australia
- Tier 1 partner at the Graphene Engineering and Innovation Centre (GEIC), with major R&D capability in Manchester, UK
- Established client base, market channels and distribution partners in Americas, Europe, Asia Pacific and South Africa



Capability

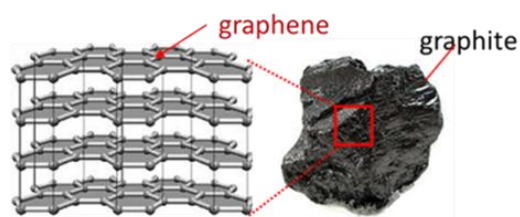
- Robust 100 tonne/year production capacity with readily scalable technology to cater for growing demand
- Transforming graphene research into high growth commercial opportunities



About First Graphene

first graphene

Vein graphite and chemical exfoliation



- High purity vein graphite
- Electrochemical exfoliation
- High yield processing
- Low waste

Industrial finishing and quality assurance



- Modular finishing
- 6-Sigma quality control
- At line testing
- Repeatable standards
- Recognised quality leader

Third party formulators and industry partners



- Internal/External formulators
- Industrial/academic solution development
- Mobile across value stream

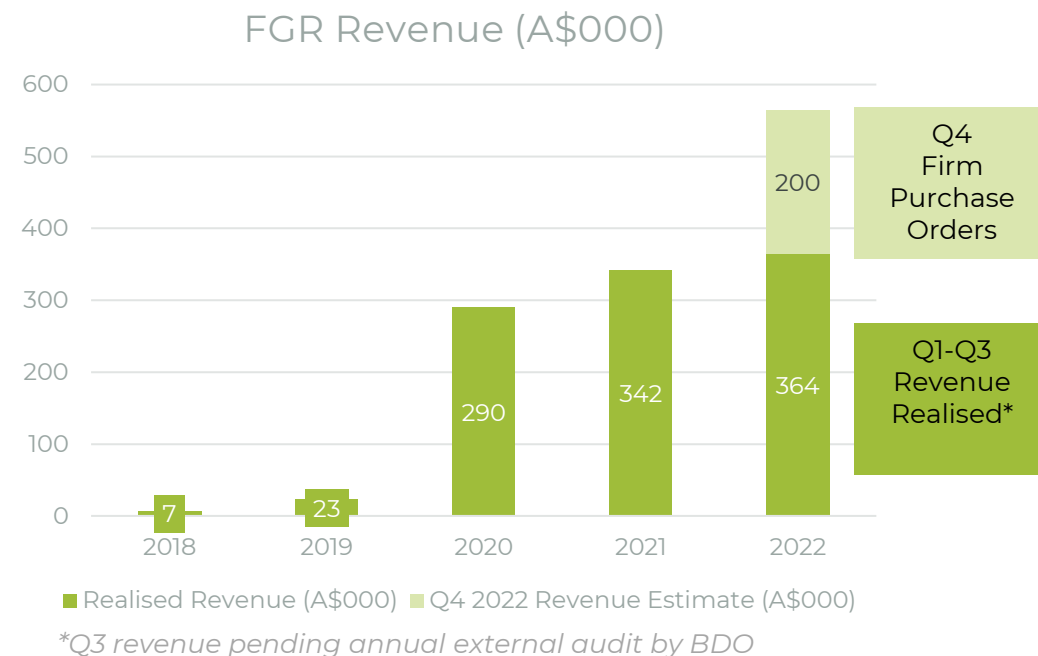
Graphitic material product differentiators



- PureGRAPH® powder, AQUA, and masterbatches
- Liquid admixtures
- Cement grinding aids
- Inks & coatings
- Supercapacitors & battery anodes

Financials and Revenue progress

Share price (1 April 2022)	A\$0.17
Issued shares – fully paid	556.67m
Unlisted options (25c) – expiry November 2023	15.0m
Market capitalisation	~A\$93.25m
Cash - April 2022	A\$7.5m



FY22 is shaping up to be FGR's most successful, with sales already higher than FY21 within the first three quarters

- Approx. \$200K in binding purchase orders for Q4 FY22, with **additional orders expected to mature before end of FY**
- Major traction in cement and concrete sectors with several multinational upstream suppliers actively pursuing PureGRAPH® enhanced solutions and sales
- New business opportunities with companies in geotextiles, and composites & plastics have driven growth in 2022
- Expansion of sales opportunities through the provisions of R&D services for formulation and application development has further enabled growth

The last quarter of 2022 is shaping up to be another strong quarter with significant orders within the composites & plastics, cement & concrete, and coatings & inks market segments

Cement and Concrete

Commercial Manager
Todd McGurgan



MARKET OVERVIEW

- Global usage In 2020:
 - **14 billion m³** of concrete produced globally
 - **4.2 billion tonnes** of cement produced globally

EMISSIONS

- Globally, cement and concrete contribute **8% of CO₂ emissions**
- Global Cement and Concrete Association (GCCA), on behalf of 40 leading cement and concrete manufacturers, committed to **cutting carbon emissions by 25% by 2030**

MARKET VALUE

- **US\$774BN** market to 2027 (Source: 360Research reports)
- **Potential graphene market**
 - **420,000t** total combined cement and concrete addressable market
 - Current client opportunity base accounts for **3% (~12,600t)** projected to reach **10% (42,000t)** by first half FY23



Cement and Concrete

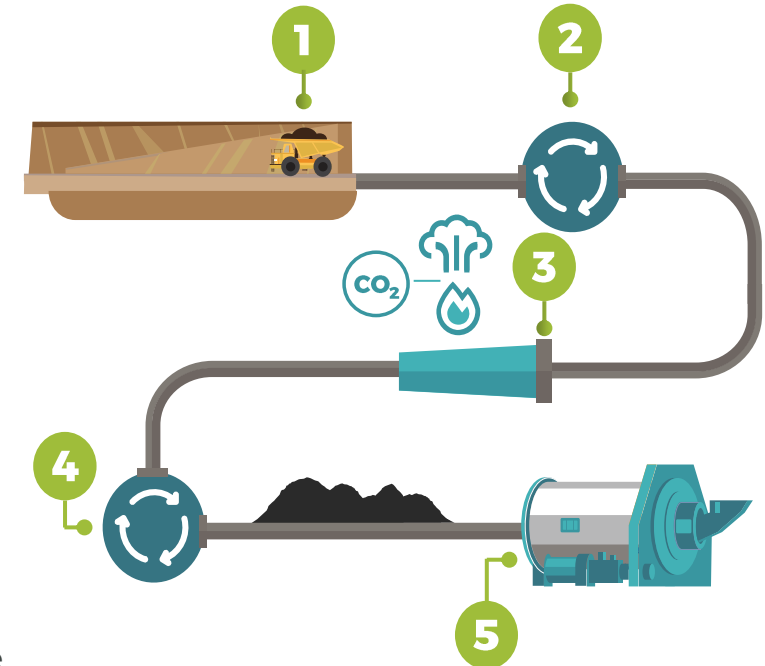
Commercial Manager
Todd McGurgan



Where are CO₂ emissions generated?

1. Raw material extraction – calcium, silica, alumina and iron
2. Raw meal preparation – crushing, proportioning, & grinding
3. Rotary Kiln – **for every tonne of clinker produced, 800-900kg of CO₂ is produced**
4. **Clinker – cooled and stored. This is the main ingredient used in Portland Cement**
5. **Final Grinding: clinker + gypsum + mineral addition = cement**

└ Greener cements are made possible by adding PureGRAPH® at this step



How does PureGRAPH® help reduce CO₂ emissions?

- Less clinker produced = less CO₂, however less clinker means lower strength, reduced performance
- **BUT NOT WHEN GRAPHENE IS ADDED**
 - Small additions of PureGRAPH® mean less clinker while maintaining strength and performance
 - └ Up to 20% lower clinker factor cements are possible, reducing CO₂ emissions by approx. 18% - 20%

First Graphene is working with upstream suppliers to leverage existing distribution channels into global companies

Cement & Concrete

Commercial Manager
Todd McGurgan



WHY THIS SEGMENT?

Cement

Addition of graphene cement additives provides significant improvements in strength and grinding efficiency, leading to far lower CO₂ emissions

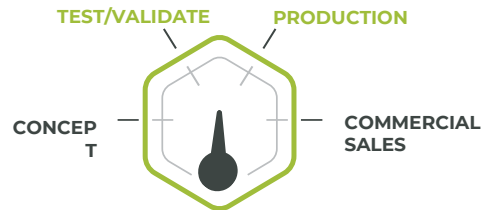
Concrete

Addition of graphene admixtures significantly improves strength and durability of concrete, with potential applications in heavy industry, marine and wastewater infrastructure



EXISTING/PRODUCTION APPLICATIONS

Cement Additives

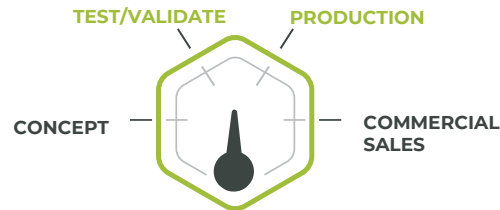


Early Adopters: +10

Value Proposition: Enables greater use of supplementary cementitious materials for reduced CO₂ greener cements



Cement & Concrete Admixtures

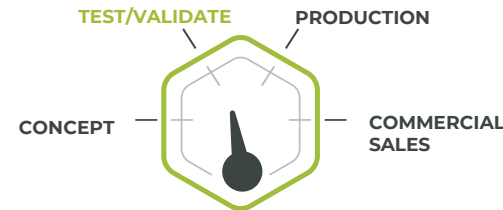


Early Adopters: +15

Value Proposition: Stronger, more durable concretes and greener, lower CO₂ cement production



Concrete & Mortar Admixtures



Early adopters: +5

Value Proposition: Stronger, more durable concrete and mortar mixtures for higher levels of performance

Composites & Plastics

Commercial Manager
Neil Armstrong

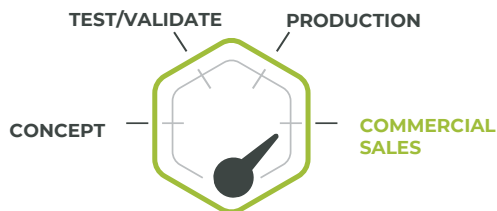


WHY THIS SEGMENT?

- Increased performance and weight reduction
- Carbon reduction by lowering waste, increasing efficiency, longer life and applications for recycled materials
- Developing conductive materials for applications in renewable and smart technologies
- Combined market value **~US\$470BN** with established addressable amount of **100,000 tonnes per annum**

EXISTING/PRODUCTION APPLICATIONS

GRP swimming pools

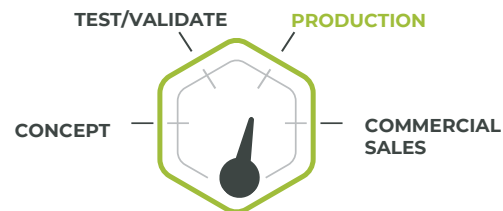


Early adopters: 1

Value Proposition: Increased flexural strength >30% and >40% reduction in water diffusion



Solar water heating

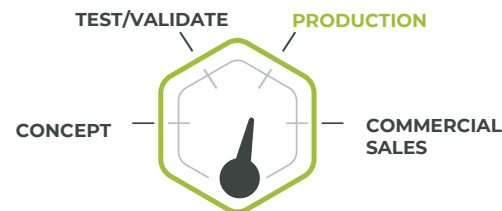


Early adopters: 1

Value Proposition: Unique product to harness solar energy to reduce energy demands



Extruded HDPE sheets



Early adopters: +5

Value Proposition: Allows for weight reduction, increased wear resistance and strength



Inks & Coatings

Commercial Manager
Shoaib Qureshi

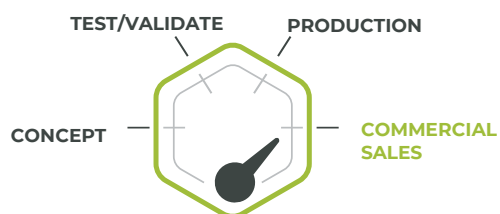


WHY THIS SEGMENT?

- Improving sustainability and longevity of coatings and inks across sectors facing environmental, energy management, safety and technical challenges
- Enhancing durability, adding mechanical strength, and contributing to safety and the environment via conductive, antistatic and barrier features
- Facilitating development of smart coatings and inks due to both electrical and thermal conductive nature of graphene
- Combined market value ~**US\$151BN** with established addressable amount of **100,000 tonnes per annum**

EXISTING/PRODUCTION APPLICATIONS

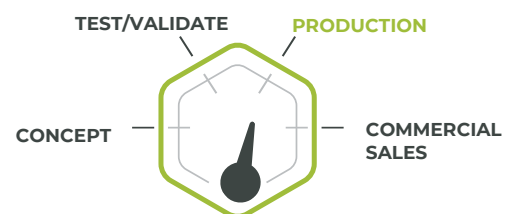
Geotextiles



Early adopters: 1

Value Proposition: Preventive technology to detect leaks and failure in surface and subsurface environments

Antistatic Coatings

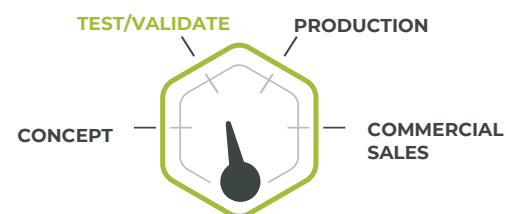


Early adopters: 1

Value Proposition: Protection of people and products from surface electrostatic discharge



Protective clothing



Early adopters: +3

Value Proposition: Enhancing the mechanical and thermal performance of technical textiles



Rubbers, Elastomers & Foams

Commercial Manager
Peter Osborne

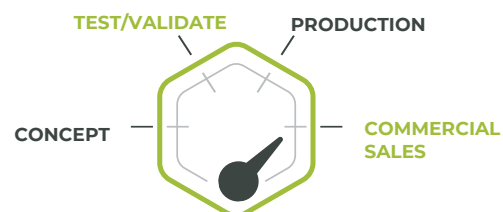


WHY THIS SEGMENT?

- **Rubbers:** Alternative refined carbon source to carbon black to enhance a wide range of industry targets in sustainability and smart solutions
- **Elastomers:** Wear resistance and life extension in aggressive heavy industry environments, filling the gap in the polymer space to enhance gas and vapour controls for energy and material storage, and transportation solutions
- **Foams:** Lighter, stronger and more resistant to wear requirements alongside fire resistance with regulatory controls being redefined within the chemical sector
- Combined market value **~US\$250BN** with established addressable amount of **200,000 tonnes per annum**

EXISTING/PRODUCTION APPLICATIONS

Industrial Parts

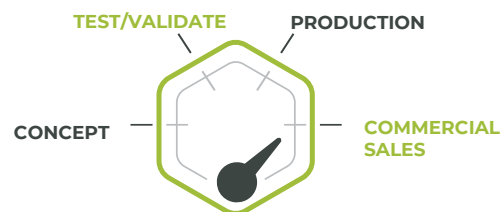


Early adopters: +15

Value Proposition: Reduce waste and downtime in industrial processes



Footwear

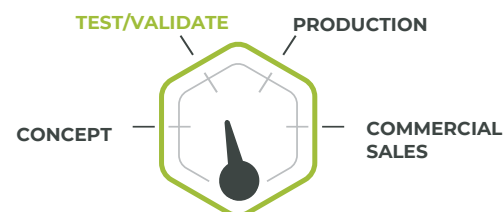


Early Adopters: +5

Value Proposition: Performance improvements and lifecycle benefits



Wheels & Rollers



Early Adopters: +10

Value Proposition: Improved maintenance plans and reduced downtime



Energy Storage Summary



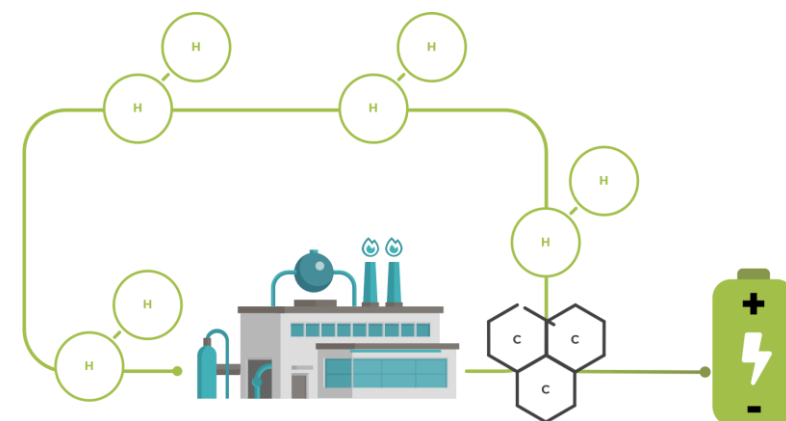
INCUBATION OF NEW TECHNOLOGIES

Supercapacitors

- Development of metal-oxide/graphene hybrid active materials to enhance the performance of supercapacitors
- Proven 85% improvement in energy density and 300% improvement in capacitance
- Working to enhance electrolyte and manufacture first pouch cell products
- Working with “best in class” organisations to enhance supercapacitor architecture

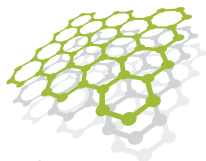
Hydrodynamic Cavitation Technology

- One-step hydrodynamic cavitation process converts petroleum feedstock to battery-grade graphite, graphene and green hydrogen
- Highly scalable using standard equipment
- Sets pathway to provide oil and gas sector with diversified green energy options to help meet demand of growing EV market
- Process also being developed to graphene coat silicon materials for battery anodes



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