

ASX ANNOUNCEMENT | PERIOD ENDING 31 MARCH 2024

QUARTERLY REPORT

ASX:

FGR

FSE:

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OTC:

FGPHF

Quarterly Activities Report: March 2024

First Graphene Limited (ASX: FGR; “First Graphene” or “the Company”) is pleased to provide an update on the financial and operational performance for the quarter ending 31 March 2024.

Highlights

- **Third trial confirmed with UK’s largest cement producer, Breedon Group plc, to test go-to-market cement additive, PureGRAPH-CEM®**
- **Ground-breaking development of high demand graphene oxide for new applications**
- **Significant efficiency and efficacy improvements with new mill at manufacturing facility**
- **Continued research & development with strong flow of positive results across multiple sectors**
- **Quarterly revenue of circa AUD\$214,000 reinforces growth in demand for PureGRAPH®**

Financial performance

First Graphene has reported a consecutive increase in revenue for the third quarter of FY2024, recording a quarterly revenue of circa AUD\$214,000 (unaudited).

Segment updates

Cement and concrete

First Graphene has worked hard to deliver exceptional results for the Company in the cement and concrete sector, with multiple achievements made in the testing and trialling of PureGRAPH® products.

Following the successful registration of the PureGRAPH-CEM® trademark, as announced in the previous quarter, the Company has secured opportunities to utilise this optimised cement additive.

The most significant opportunity is a third trial with the UK’s largest cement producer, Breedon Group plc (“Breedon”) to test the new graphene formulation, scheduled to begin in the second half of 2024.

The trial will use just over two tonnes of the specialised aqua-dispersed PureGRAPH-CEM® to produce up to 1,000 tonnes of cement under full-scale production conditions at Breedon’s Hope Plant.

First Graphene’s new product will be used as an additive in the cement production process, and can be added directly to the mill, removing the need for additional processing equipment.

This third trial will be executed under the terms of the Joint Development and Commercialisation Agreement signed with Breedon in 2023.

It will also incorporate technical and practical experiences obtained during the first two trials, conducted in exclusive collaboration with the cement producer.

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Results from this trial is expected to further verify First Graphene's product, which is already commercially available to the cement and concrete segment.

Graphene enhanced concrete excels in field trials

The graphene enhanced concrete slab developed during the first trial with Breedon has surpassed 200 days in operation at a wheel washing facility at a major highway infrastructure project in the UK.

The strength and integrity of the slab has been maintained during this time, with a complete absence of defects, damage or deterioration reported.

Core samples taken from the slab indicate good compressive strength performance for the grade of concrete, which was prepared using a graphene enhanced CEM II A/L mixture.

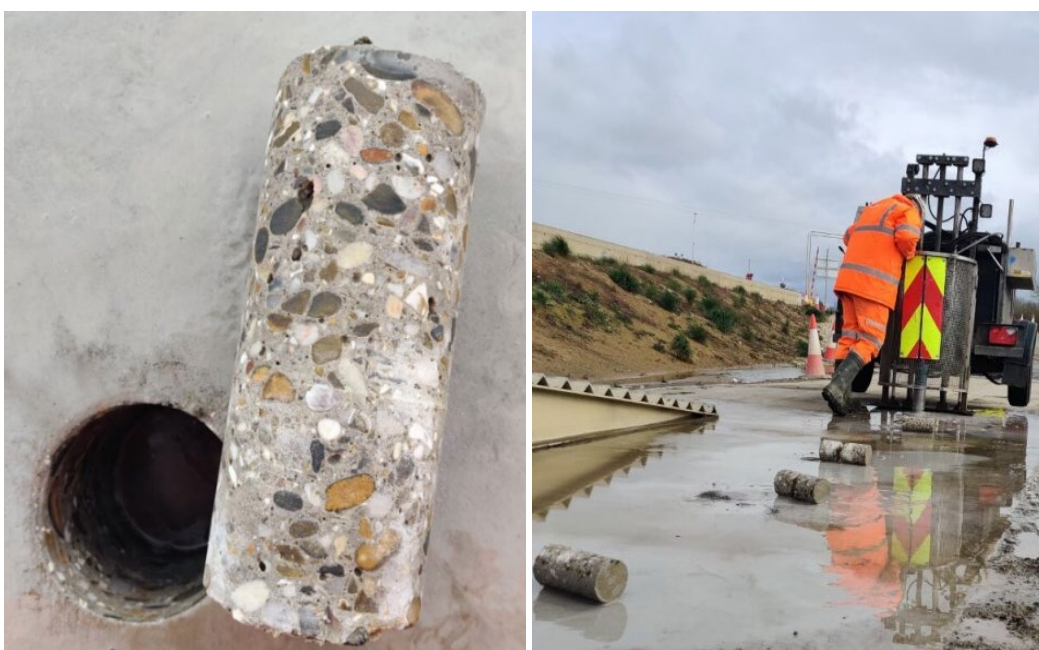


Figure 1 and 2: A core sample (L), and samples being removed from the graphene enhanced concrete slab in the UK.

The graphene enhanced concrete has been subjected to more than 150 heavy vehicle movements per day, as well as abrasion and wetting from washed wheels and a wide range of weather conditions.

These results mean the long-term strength of graphene enhanced cement has been demonstrated in a real-world aggressive environment.

More importantly, the trials reinforce the beneficial use of First Graphene's products as an emission reducing and high performing solution for the cement and concrete industry.

Energy generation and storage

In a milestone achievement for the Company, First Graphene successfully produced graphene oxide at its Henderson facility in Western Australia, using a modified version of the current production process.

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Graphene oxide has similar characteristics to graphene, in that it is strong, flexible, and porous, but it also has a high oxygen content which makes the material readily dispersible in water.

These traits make graphene oxide suitable for filtration, supercapacitor applications, polar thermoplastic polymers, and aqueous coatings.

First Graphene has successfully manufactured multi-kilogram quantities of graphene oxide, using a cost-effective, scalable, and repeatable process with minimal waste streams.

This was a significant moment in the quarter for First Graphene, with the success in manufacturing graphene oxide expanding the Company's range of commercial opportunities.

Work immediately began on identifying pathways to advance the supply of this new product to multiple industries, including water purification and desalination markets where there is strong demand.

Graphene enhanced electrocatalysts showcase superior performance

The Company successfully developed low-cost, high-performing graphene enhanced electrocatalysts for use in the production of 'green' hydrogen, during a 12-month project in the United Kingdom.

Electrocatalysts can reduce the energy required and speed up the rate of hydrogen and oxygen production when splitting water by electrolysis, making the material essential for economic production of 'green' hydrogen.

Currently, electrocatalysts require high-cost rare metals such as iridium and ruthenium which can increase operating costs.

During this project, First Graphene's graphene enhanced electrocatalyst performed remarkably well compared to current commercial electrocatalysts, meaning the solution has the potential to become a commercially beneficial product for industry.

Excitingly for the Company, these results have been used to leverage further government funding for a new project which will assess the details of scaled catalyst production.

This is a necessary step towards full-scale production of graphene enhanced catalyst materials and partnerships with end users, delivering another opportunity to commercialise First Graphene's product.

Supporting this was the establishment of a dedicated testing facility at the Company's UK headquarters, to perform electrochemical analysis and develop graphene oxide in-house.

This will result in faster, more cost-effective testing of graphene materials and electrocatalysts, which will ultimately create new opportunities and deliver further insights into existing PureGRAPH® materials.

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Electrothermal heaters for electric vehicles

First Graphene is providing in-kind samples of PureGRAPH® to the Queensland University of Technology to test the impact of graphene in a new product for the future of transportation – electric vehicles (EVs).

This 18-month project will develop graphene-based electrothermal heaters, by incorporating PureGRAPH® into heating films to enhance conductivity, which could result in improved heating performance.

Heating power consumption can result in a rapid mileage reduction for EVs, particularly during winter, and with EV demand continuing to rise, advanced solutions to manage mileage reduction will be required.

This project is expected to deliver one such solution using an advanced graphene enhanced material, which if successful, could also increase demand for First Graphene's product in the rapidly growing global EV market.

Composites and plastics

First Graphene continued collaboration with UK-based eco-home builder Vector Homes to enhance the strength and fire-retardant properties of sustainable construction materials using the Company's PureGRAPH®.

The initial prototype of these eco-homes was built in the prestigious Energy House 2.0 facility alongside national housebuilders Barratt Developments and Bellway Homes.

This determined PureGRAPH® 10 was the optimal product to increase the structural integrity of the house by improving fire retardancy and strength, further demonstrating the multifunctional benefits of the PureGRAPH® range.

This project reinforces graphene's ability as a thermoplastic additive for fire retardant construction applications, which will become vital to enhancing durability of homes for the future.

Excitingly, this development marks another entrance into the construction market for First Graphene, expanding on the cement and concrete segment.

The value in this market provides commercial opportunities for the Company, with the construction of new housing in the United Kingdom alone worth AUD\$364 billion.

New waterproofing application for graphene

First Graphene has supplied graphene products into an Australian client, for its benefits in waterproofing membrane applications for residential and commercial building in Australia and New Zealand.

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Preliminary work investigated the effect of incorporating graphene with synthetic elastomeric rubber and other inorganic fillers to develop waterproofing membrane technology.

Results found there was a synergistic effect between graphene and inorganic fillers in the elastomeric polymer matrix, which results in excellent reduction of water absorption and improvement in durability.

This is expected to be a gamechanger for waterproofing membrane technology across Australia and New Zealand, with the material used to protect or repair homes impacted by water damage.

The local partner involved in these trials will also have the opportunity to become a pioneer in this sector, with the technology expected to open up possible uses in other applications in the future.

Other applications

Enhanced lubricants report improved durability and wear resistance

First Graphene completed laboratory and commercial scale trials with a multinational client during the quarter, which investigated the benefits of adding PureGRAPH® into lubricants.

Improved durability and increased wear resistance were demonstrated in these trials, which provided the confidence to progress to full production of graphene enhanced lubricants, with this product now a reoccurring revenue stream.

The trials and now production of this enhanced material has enabled First Graphene to venture into a new application required by a variety of segments who use lubricants, including automotive and industrial.

Graphene enhanced material for mining industry

The Company received positive results from laboratory testing of graphene enhanced conveyor belts, which demonstrated enhanced mechanical properties, increased durability, and longevity.

This has progressed to commercial-scale trials, with the addition of PureGRAPH® in the manufacture of rubber conveyor belts potentially providing longer-lasting equipment for the Australian mining industry.

Separate to these results, First Graphene signed a Joint Development Agreement (JDA) with Australian-based Tribotech to develop graphene enhanced rollers for use by iron ore miners in Western Australia.

Further avenues for graphene products

First Graphene has also tested its leading products in a variety of other materials, including protective clothing, electrostatic discharge flooring, and 3D printing.

Results from these activities were announced during the quarter and reinforce the global surge in demand for the benefits of graphene across multiple segments.

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Other activities to note

Peer-reviewed confirmation of PureGRAPH®'s benefits

During the quarter, the Company received independently verified confirmation of the benefits of adding PureGRAPH® to conventional concrete, through the University of Stellenbosch.

The peer-reviewed Masters' Thesis investigated the performance of First Graphene's product in a dry mixing approach, using different aggregates to determine the effect of PureGRAPH® in the final material.

This study found First Graphene's product could facilitate greener, stronger, and longer-lasting concrete, as well as provide a partial solution to decrease global cement consumption, ultimately lowering carbon emission by the cement industry.

Operations

Henderson graphene manufacturing optimisation

Commissioning of a new Retsch mill has been completed at First Graphene's manufacturing facility in Henderson, Western Australia, with significant increases to efficiency and efficacy reported.

The mill has improved downstream process efficiency by 60% and made the entire milling process 67% more cost-effective.

The advanced and user-friendly design of the mill reduces powder handling and minimises labour required to feed graphene cake into the mill, improving the Company's Occupational Health and Safety (OHS).

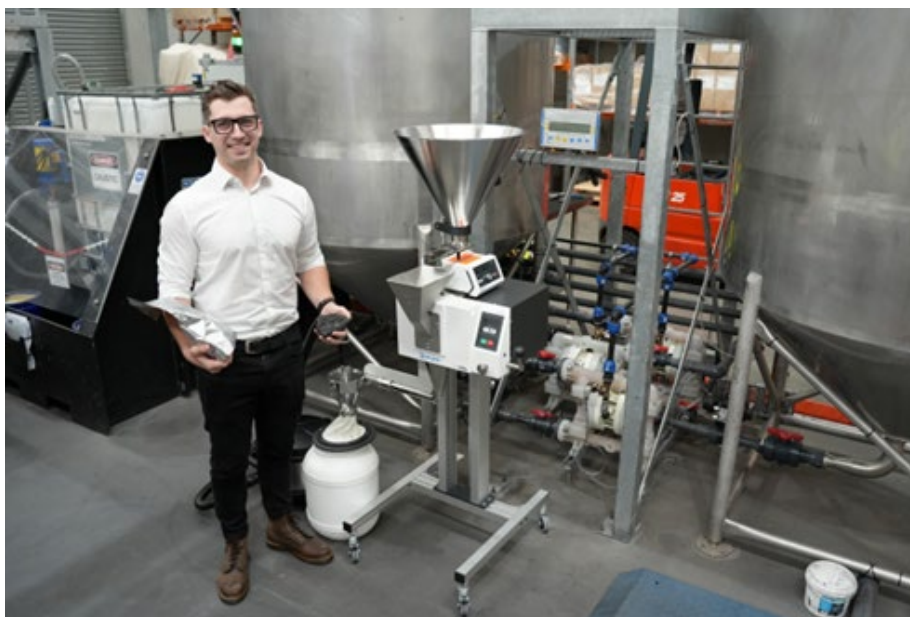


Figure 3: FGR Commercial Manager Neil Armstrong with commissioned Retsch grinding mill.

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The new mill also benefits our product by improving reproducibility to specification and reducing labour content, which is anticipated to subsequently lower costs.

This reduction in product cost will ultimately result in an increased margin, improving First Graphene's financial progress and aligning with forecast volume demand over the next five years.

Increased focus on global commercialisation

As First Graphene ramps up its commercialisation strategy, with a greater focus on applications of PureGRAPH® for commercial clients, the decision was made to reduce to a Tier Two Member of the Graphene Engineering Innovation Centre at the University of Manchester.

This will allow the Company to further focus on supplying products to commercial clients, expanding distribution networks and better utilising internal R&D activities to advance commercialisation.

Company appointments

First Graphene has appointed Ms Elizabeth Lee as Company Secretary and Marcelle Geldenhuis as Financial Controller during the quarter.

Both appointees collectively replace former Company Secretary Adita Asthana, who ceased working in the role in mid-March as he moved on to new challenges.

- ENDS -

This release has been approved for release by the Chairman.

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About First Graphene Ltd (ASX: FGR)

First Graphene Limited is focused on the development of advanced materials to help industry improve. The Company is a leading supplier of graphitic materials and product formulations with a specific commercial focus on large, high-growth global markets including cement and concrete; composites and plastics; coatings, adhesives, sealants and elastomers (CASE); and energy storage applications.

One of the key outcomes that these advanced materials offer is the reduction of carbon dioxide emissions, whether directly through a reduction in output of these harmful greenhouse gases or lower energy usage requirements in manufacturing, or indirectly due to enhanced performance characteristics and extending the usable life of products.

First Graphene has a robust manufacturing platform based on captive and abundant supply of high-purity raw materials, and readily scalable technologies to meet growing market demand. As well as being the world's leading supplier of its own high performance PureGRAPH® graphene product range, the Company works with multiple industry partners around the world as a supplier of graphitic materials and partner to research, develop, test and facilitate the commercial marketing of a wide range of sector-specific chemical solutions.

First Graphene Ltd is publicly listed in Australia (ASX:FGR) and has a primary manufacturing base in Henderson, near Perth, WA. The Company is incorporated in the UK as First Graphene (UK) Ltd and is a member of the Graphene Engineering Innovation Centre (GEIC), Manchester, UK, where it has a strong marketing and R&D capability.

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Appendix 4C

Quarterly cash flow report for entities subject to Listing Rule 4.7B

Name of entity

First Graphene Limited

ABN

50 007 870 760

Quarter ended ("current quarter")

31 st March 2024

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (9 months) \$A'000
1. Cash flows from operating activities		
1.1 Receipts from customers	195	949
1.2 Payments for		
(a) research and development	(317)	(790)
(b) product manufacturing and operating costs	(116)	(475)
(c) advertising and marketing	(171)	(301)
(d) leased assets	-	-
(e) staff costs	(514)	(1,462)
(f) administration and corporate costs	(403)	(981)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	13	26
1.5 Interest and other costs of finance paid	(6)	(19)
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	628	727
1.8 Other (provide details if material)	(25)	(67)
1.9 Net cash from / (used in) operating activities	(716)	(2,393)
2. Cash flows from investing activities		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	(48)	(48)

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (9 months) \$A'000
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	-
2.2 Proceeds from disposal of:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	-	-
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	-
2.3 Cash flows from loans to other entities	-	-
2.4 Dividends received (see note 3)	-	-
2.5 Other (provide details if material)	-	-
2.6 Net cash from / (used in) investing activities	(48)	(48)

3. Cash flows from financing activities		
3.1 Proceeds from issues of equity securities (excluding convertible debt securities)	-	2,912
3.2 Proceeds from issue of convertible debt securities	-	-
3.3 Proceeds from exercise of options	-	-
3.4 Transaction costs related to issues of equity securities or convertible debt securities	-	-
3.5 Proceeds from borrowings	-	-
3.6 Repayment of borrowings	-	-
3.7 Transaction costs related to loans and borrowings	-	(16)
3.8 Dividends paid	-	-
3.9 Other (provide details if material)	-	-
- reduction in lease liability	(17)	(62)
- Cash received from third parties	-	-
3.1 Net cash from / (used in) financing activities	(17)	2,834

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (9 months) \$A'000
4. Net increase / (decrease) in cash and cash equivalents for the period		
4.1 Cash and cash equivalents at beginning of period	4,438	3,226
4.2 Net cash from / (used in) operating activities (item 1.9 above)	(716)	(2,393)
4.3 Net cash from / (used in) investing activities (item 2.6 above)	(48)	(48)
4.4 Net cash from / (used in) financing activities (item 3.10 above)	(17)	2,834
4.5 Effect of movement in exchange rates on cash held	13	51
4.6 Cash and cash equivalents at end of period	3,670	3,670

5. Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	Current quarter \$A'000	Previous quarter \$A'000
5.1 Bank balances	3,670	4,438
5.2 Call deposits	-	-
5.3 Bank overdrafts	-	-
5.4 Other (provide details)	-	-
5.5 Cash and cash equivalents at end of quarter (should equal item 4.6 above)	3,670	4,438

6. Payments to related parties of the entity and their associates	Current quarter \$A'000
6.1 Aggregate amount of payments to related parties and their associates included in item 1	149
6.2 Aggregate amount of payments to related parties and their associates included in item 2	-
<i>Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.</i>	
Amounts included in 6.1 relate to payment of executive Director salaries and consulting fees.	

7. Financing facilities <i>Note: the term "facility" includes all forms of financing arrangements available to the entity. Add notes as necessary for an understanding of the sources of finance available to the entity.</i>	Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
7.1 Loan facilities	-	-
7.2 Credit standby arrangements	-	-
7.3 Other (please specify)	-	-
7.4 Total financing facilities	-	-
7.5 Unused financing facilities available at quarter end		
7.6 Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.	-	

8. Estimated cash available for future operating activities	\$A'000
8.1 Net cash from / (used in) operating activities (item 1.9)	(716)
8.2 Cash and cash equivalents at quarter end (item 4.6)	3,670
8.3 Unused finance facilities available at quarter end (item 7.5)	-
8.4 Total available funding (item 8.2 + item 8.3)	3,670
8.5 Estimated quarters of funding available (item 8.4 divided by item 8.1)	5.1
<i>Note: if the entity has reported positive net operating cash flows in item 1.9, answer item 8.5 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.5.</i>	

8.6 If item 8.5 is less than 2 quarters, please provide answers to the following questions:

8.6.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?

Answer: n/a

8.6.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?

Answer: n/a

8.6.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer: n/a

Note: where item 8.5 is less than 2 quarters, all of questions 8.6.1, 8.6.2 and 8.6.3 above must be answered.

Compliance statement

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: 30th April 2024

Authorised by: With authority of the board, this announcement has been authorised for release, by;

Michael Bell
Chief Executive Officer and Managing Director

Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standard applies to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [*name of board committee – eg Audit and Risk Committee*]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".

5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.